

2006

**Education
&
Coastal Training Program
NEWSLETTER**

**National Estuarine Research Reserve
System**

Table of Contents
EDUCATION SECTOR AND COASTAL TRAINING PROGRAM
Summary Reports - September 2006
National Estuarine Research Reserve System

ACE BASIN NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	1
2006 COASTAL TRAINING PROGRAM REPORT.....	2

APALACHICOLA NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	3
2006 COASTAL TRAINING PROGRAM REPORT.....	6

CHESAPEAKE BAY NATIONAL ESTUARINE RESEARCH RESERVE IN VIRGINIA

2006 EDUCATION PROGRAM REPORT.....	9
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DELAWARE NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	11
------------------------------------	----

ELKHORN SLOUGH NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	13
2006 COASTAL TRAINING PROGRAM REPORT.....	15

GRAND BAY NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	17
2006 COASTAL TRAINING PROGRAM REPORT.....	19

GREAT BAY NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	21
2006 COASTAL TRAINING PROGRAM REPORT.....	22

GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	24
2006 COASTAL TRAINING PROGRAM REPORT.....	26

HUDSON RIVER NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	28
2006 COASTAL TRAINING PROGRAM REPORT.....	30

JACQUES COUSTEAU NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	32
2006 COASTAL TRAINING PROGRAM REPORT.....	33

JOBOS BAY NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	34
2006 COASTAL TRAINING PROGRAM REPORT.....	35

KACHEMAK NATIONAL ESTUARINE RESEARCH RESERVE

2006 EDUCATION PROGRAM REPORT.....	36
2006 COASTAL TRAINING PROGRAM REPORT.....	37

MISSION-ARANSAS NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	38
2006 COASTAL TRAINING PROGRAM REPORT.....	39
NARRAGANSETT BAY NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	40
2006 COASTAL TRAINING PROGRAM REPORT.....	41
NORTH CAROLINA NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	43
2006 COASTAL TRAINING PROGRAM REPORT.....	44
NORTH INLET-WINYAH BAY NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	46
2006 COASTAL TRAINING PROGRAM REPORT.....	48
OLD WOMAN CREEK NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	50
2006 COASTAL TRAINING PROGRAM REPORT.....	51
PADILLA BAY NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	53
2006 COASTAL TRAINING PROGRAM REPORT.....	54
ROOKERY BAY NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	55
2006 COASTAL TRAINING PROGRAM REPORT.....	58
SAN FRANCISCO BAY NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	60
2006 COASTAL TRAINING PROGRAM REPORT.....	61
SAPELO ISLAND NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	62
2006 COASTAL TRAINING PROGRAM REPORT.....	64
SOUTH SLOUGH NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	66
2006 COASTAL TRAINING PROGRAM REPORT.....	68
TIJUANA RIVER NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	69
WAQUOIT BAY NATIONAL ESTUARINE RESEARCH RESERVE	
2006 EDUCATION PROGRAM REPORT.....	71
2006 COASTAL TRAINING PROGRAM REPORT.....	73
WELLS NATIONAL ESTUARINE RESEARCH RESERVE	
2006 COASTAL TRAINING PROGRAM REPORT.....	75
ESTUARINE RESERVES DIVISION	
2006 EDUCATION PROGRAM REPORT.....	77

ACE Basin National Estuarine Research Reserve

2006 Education Program Report

Louis D. Heyward, Sr., Education Coordinator – Heywardl@dnr.sc.gov

- **New Education Coordinator**

Louis Heyward was hired in May to assume the position of Education Coordinator for the ACE Basin-NERR. Louis has worked for the Department of Natural Resources for the past 17 years as a marine biologist concentrating in the area of mariculture. He brings a wealth of knowledge and enthusiasm to the ACE-NERR program.

- **Education Programs**

Education programs in the ACE Basin were conducted at the Edisto Interpretive Center on Edisto Island and also at the Michael D. McKenzie Field Station at Bennett's Point. Land-based programs conducted at these facilities include: studies on the biology and identification of a number of species including: fish, squid, octopus, sharks, turtles, reptiles, and crabs. The land-based programs also include wetland/salt marsh study, plankton collection and identification, marine geology, barrier island exploration, beach exploration, bird watching, archeology, and shell collection and identification.

The many opportunities offered aboard our 45' catamaran, *Discovery* include studies in estuarine ecology, estuarine inhabitants, and water quality.

Outcome Summary

So far this year, close to 1,500 students have participated in these programs at the McKenzie Field Station, and over 3,300 persons have participated in programs at the Edisto Interpretive Center. Additionally, over 6,000 individuals have participated in community and teacher programs at the two facilities. This includes participants in the Teacher Environmental Network (TEN) monthly programs, and tours of the Edisto Interpretive Center.

ACE Basin National Estuarine Research Reserve

2006 Coastal Training Program Report

Rebekah Walker Szivak, CTP Coordinator – Walker@dnr.sc.gov

The ACE Basin Coastal Training Program (CTP) is designed to reach decision makers in the coastal South Carolina counties of Charleston, Colleton, Beaufort, and Jasper. Decision makers in this region are varied depending on the topic, but generally include, elected and appointed county and municipal officials, county and municipal planning staff, state and federal staff managing coastal resources, professionals working in the coastal zone, non-profit organizations and community groups working to protect coastal resources. Events this year include:

- **Dune Restoration training, January and October 2006**

A program at the request of the Town of Edisto Beach was held to inform beach communities throughout the region on the dynamics behind beach erosion and techniques to deal with erosion, specifically dune restoration. Presentations were followed by a hands-on training on planting dune grass. As a result of the meeting, Edisto Beach is implementing a city wide planting next year in conjunction with the homeowners association. A second seminar will be held in Hilton Head, SC in October.

- **Green Building seminar series, January and March 2006**

The Southeast region CTPs joined together to produce a series of seminars on green (i.e. sustainable or high performance) building. The purpose of the series was to show building practices used and highlight regional case studies. A technology fair at each meeting to draw attention to products on the market for use in green buildings. ACE Basin CTP helped host two of these events – the first in January in Litchfield Beach, SC and the second in March in Savannah, GA.

- **Using Habitat Mapping seminar, June 2006**

CTP partners are working to develop a priority habitat mapping tool, so development decisions can be guided by scientific understanding of habitats/plant communities and their associated flora/fauna. The purpose of the first seminar was to discuss habitat classification systems and identify issues with implementation of this system into local government decisions. A number of upcoming meetings to further develop this land use planning tool and educate regarding the need for habitat diversity conservation will follow in the year ahead.

- **Project Design and Evaluation, August 2006**

Staff worked with NOAA's Coastal Service Center to host a 2-day seminar on project design and evaluation. This seminar provided coastal managers with tools and skills to design projects with measurable goals and outcomes. The role of logic models and performance measurement as part of project design is stressed to properly plan project evaluation.

Apalachicola National Estuarine Research Reserve

2006 Education Program Report

Erik Lovestrand, Education Coordinator – Erik.Lovestrand@dep.state.fl.us

The Reserve has implemented an education, outreach and interpretation program that focuses on two main goals. These goals are **public awareness and appreciation** of the resources of the Apalachicola River and Bay Region and **public action** to protect them into the future. Education programs are accomplished through a number of different methods. These include: trips to the Reserve's nature center, trips to remote field sites, overnight programs on a barrier island, educational curricula for classrooms, interpretive exhibits, newsletters, teacher workshops, presentations and lectures, volunteerism, publication production, participation in cultural events, audio/visual productions and other public workshops or special events. Education staff work with other organizations, both public and private, to implement the program. During this past year over 10,700 people visited the Reserve facilities or participated in educational programming provided by Reserve staff. Additionally, the Reserve's newsletter reaches a mailing list of nearly 800 people.

2005-06 Program Highlights

- **Group Programs**

During this year education staff conducted programs with 56 scheduled groups. A total of 1,280 students of various ages were able to learn about the unique resources of the Reserve. These programs took place on the land, on the water and at the Reserve nature center.

- **Education Library**

Education staff maintains a checkout library that houses a diverse collection of books, DVD's and videos. These materials are available to educators and the public. During this year 14 individuals checked out a total of 29 items from the library.

- **Guest Lectures**

Over this last year there were a total of seven lectures hosted for the public. Topics included shark awareness, bears, astronomy, seagrass habitat and wildlife rehabilitation. These lectures typically take place in the evening and provide educational opportunities to a diverse audience from the local community.

- **Classroom Curricula**

The Reserve has produced two curricula that may be checked out for use in the classroom. Project Estuary is the Reserve's middle/high school curriculum and Estuarine Pathways was developed for elementary grades.

2005-06 Special Events

- **Cleanups**

Several litter removal projects were conducted this year on Reserve lands or waters. One project, coordinated by Research staff was a derelict crab trap removal project where over 300 traps were removed from Apalachicola Bay. That involved many Reserve staff and volunteers.

- **Festivals and Events**

This year Reserve staff participated in a variety of public events with an exhibit and educational materials provided to the public. These included a Seagrass Awareness Day, Earth Day, the Antique Boat Show, Florida Seafood Festival, the Panhandle Birding and Wildflower Festival, and Estuaries Day. The Estuaries Day event at the Reserve's nature center attracted nearly 400 people alone.

- **School Activities**

Aside from the traditional school programs, Reserve staff are involved with some school-related projects. Several Reserve staff participated in judging at local science fair events this year. Staff was also involved in the annual Invention Convention at a local school. The Reserve is moving into its third year for the LIFE (Learning in Florida's Environment) Program in Franklin County. This hands-on, outdoor science program gets the entire 7th grade into the field four different times during the school year. Last year, approximately 115 kids collected data and learned about wetlands, soils, barrier islands, beaches, pine flatwoods, estuaries and assorted other cool topics. Pre and post-visit activities have also been developed for the classroom and some even use the data the students collect in the field. Each year for the past three years, the Reserve has hosted a group of students from Georgia for the annual World Water Monitoring Day event. Students collect water quality data at two locations in the River and record the data on an international web site.

- **Census Projects**

Education staff participated in four different wildlife census projects this year. These included monarch tagging, Christmas bird counts, annual winter Plover survey and the Breeding Bird Survey.

- **Master Naturalist Programs**

Education staff participated in teaching several segments in courses offered by the Florida Master Naturalist Program. The Reserve has served as a host for the program which consists of a 40 hour program that teaches about a variety of topics related to Florida ecosystems.

Program Development Accomplishments:

- **Publications**

Work was done during this year on a Kid's Activity Booklet about the seasons of the Apalachicola Ecosystem. The booklet should be in print during Summer or Fall of 2006. The Oystercatcher newsletter was revived during this year. No issues had been produced for a while after the loss of a staff position that was responsible for layout and production. OPS funds were used to contract with a graphic designer to get it going again.

- **Visitor Center Development**

During this year additional funding was acquired to move the Reserve forward in the development of its new center in Eastpoint.

- **Exhibits**

Two temporary exhibits were constructed this year and housed in the display window in the entry area of the nature center. The first interpreted the life-cycle and migration patterns of the monarch butterflies that visit our area each fall. The other exhibit featured a diorama of our local seagrass habitat and its inhabitants. The Reserve also maintains an aquarium exhibit which features fish, turtles and invertebrates of the region.

- **Local Cable Productions**

Two different segments relating to Reserve education programs were produced by a local cable station on St. George Island this year. One related to the LIFE Program and featured some of the students and teachers in the field. The other was about the Reserve's nature center and encouraged the public to visit. The two spots were run on the St. George Island channel and many visitors to the Reserve commented that they had seen them.

Apalachicola National Estuarine Research Reserve

2006 Coastal Training Program Report

Rosalyn Kilcollins, CTP Coordinator – Rosalyn.Kilcollins@dep.state.fl.us

July 2005 – June 2006. Programs, planning and outreach this year have focused on land use planning and growth related issues, specifically relating to stormwater and watersheds; best management practices; and ecotourism.

Training Programs

Five CTP workshops and two 40-hour Florida Master Naturalist Courses were offered for a total of 25 days of training with 192 attendees. Overall about 233 people participated in CTP programs. Other CTP programs and technical assistance reached additional elected and appointed officials, citizen groups and Reserve visitors.

- **Gulf of Mexico Alliance Regional Community Meeting**

The workshop was attended by 47 participants including local citizens, community leaders, non-profit organizations, scientists, resource managers, elected officials and others interested in the Gulf of Mexico. Partners included the NOAA Coastal Services Center, NOAA's Estuarine Reserves Division, and Friends of the Reserve.

- **NEMO Network in North Florida**

Thirty one people attended the NEMO “Scoping” Workshop in October 2005 and the North Florida NEMO Network was born. The charter was signed with the Bay County Sea Grant Agent and ANERR CTP coordinator as leaders. The first meeting was held in January with about 20 interested agencies’ representatives, organizations and volunteers. Long and short term goals and the next steps were decided.

The outcomes of this workshop include the City of Carrabelle using NEMO education and technical assistance in updating their comprehensive plan and master stormwater plan and strengthening their stormwater requirements beyond what is required by the state for their area. The CTP Coordinator gave NEMO presentations at the statewide Florida Waterfronts Program Managers meeting, NW District Aquatic Preserve and Permitting Coordination meeting, North Florida NEMO Network, and Stormwater, Erosion and Sediment Control Training workshop.

The CTP coordinator also provided articles on NEMO, the pollutants in stormwater, appreciating native plants, how individuals can make a difference for the oceans, and events such as Coastal Cleanup and Estuaries Day to the [Forgotten Coastline](#) – a free local paper.

- **Seminar on Red Tide: Ecology, Impacts and Response**

The Red Tide Seminar attracted 44 people including scientists and researchers from Florida and North Carolina, a NOAA fellow, Florida State University graduate oceanography student coastal aquatic resource managers, and health department staff from several counties. Andy Reich with the Florida Department of Health Aquatic Toxins Program was the main organizer. Presentations were given by eminent researchers and health professionals on red tide blooms in Northwest Florida, ecology and biology, health effects and social/economic.

The outcomes of this seminar include that the presentations were posted on the DOH – Environmental Health Program’s webpage. The workshop proved so successful as a model, that it will be repeated in other parts of the state. Possible future actions may include discussions and/or

surveys to determine education, public information and notification procedures needs of health officials, tourists and residents relating to red tide.

- **Florida Stormwater, Erosion, and Sedimentation Control Site Inspector Training & Certification Workshop**

Twenty-four inspectors, contractors, permit reviewers, code enforcement and public works personnel, consultants, planners and engineers completed the workshop. The Florida DEP Stormwater Training Program provided the program. The CTP coordinator gave a NEMO presentation to set the stage for several of the training topics.

Technical Assistance

Technical assistance and networking are a major part of the Apalachicola Reserve's CTP. The goal is to provide technical assistance, networking, and awareness presentations regarding NERR priority issues, stormwater management, model ordinances, low impact development, best management practices and other topics. Projects this year are listed below

- Provided input to Apalachicola Planning and Zoning on local tree ordinance development and invasive species.
- Participated in the Apalachicola Florida Waterfronts Partnership Committee and environmental sub-committee. Provided technical assistance to partners and consultants for the Master Stormwater Plan and Scipio Creek Improvements Feasibility Study.
- Provided information and resources on stormwater and BMPs to the City of Carrabelle, consultants for Eastpoint Planning Charrette, and NW Aquatic Preserves Manager and DEP NW District Watershed Coordinator.
- Planning and resources were provided to US Fish and Wildlife Service North Florida Coastal Program on stream restoration and living shorelines.

Outcome Summary

An invasive plants project was started with the City of Apalachicola, Reserve's CTP and Stewardship coordinators, the Nature Conservancy and Sea Grant. The project will include education presentations for elected officials and the public. If the Commission approves, the City will apply for funds to incorporate removal of invasive plants and use of native plants for upcoming sidewalk, parking lot, stormwater and other public space projects in the Waterfronts District. The CTP coordinator will share Low Impact Design examples for inclusion in the projects.

The CTP coordinator will assist with planning and conducting a community stakeholders' workshop with the NW Aquatic Preserves manager to identify water quality issues and sources of pollution as well as options for solutions.

- **Collaboration with other NERRs**

Coordinated with Rookery Bay CTP coordinator to submit proposals and co-present sessions on the CTP as a model for behavior change at The Coastal Society's Conference in St. Pete Beach and the Florida Local Environmental Resource Agencies conference in Sarasota. The presentations were well received and new contacts were established for programs and partners.

Collaborated with the three Florida reserves on a scope of work and reviewed proposals for a CZM grant project on a needs assessment of elected officials. Meetings, conference calls, coordination and planning will continue regarding assessment of the training needs of elected officials, methods for reaching and involving them and development of programs designed for their interest and needs.

Participated in planning for Coastal Hazards Training based on the ASFPM's No Adverse Impact Guidebook for Coastal Areas.

- **CTP Advisory Committee**

Four new members were appointment. The Committee met in January and decided on CTP priorities for 2006-07: sustainable development, measuring indicators, water quality basics, NEMO outreach, wastewater alternatives, recreation and tourism impacts (boating, fishing and dock impacts), and highlighting research in the region. Real estate, builders, permitting staff and environmental professionals were recommended audiences. The Committee reviewed and commented on the draft survey on training needs for wastewater alternatives and helped to get the survey to appropriate respondents.

Chesapeake Bay National Estuarine Research Reserve in Virginia

2006 Education Program Report

Sarah McGuire, Education Coordinator – McGuire@vims.edu

Bob Carroll, former Education Coordinator

- **New Education Coordinator**

Sarah McGuire joined the Chesapeake Bay NERR team in June 2005 as the Middle School Marine Education Specialist and in September will take over the Education Coordinator position left by Bob Carroll. Sarah has been working on the Chesapeake Studies program at CBNERRS linking field trips to the classroom for 7th grade students.

- **Teacher Training**

Water Quality: one, 2-day workshop – Our *York River Water Quality Curriculum* has been distributed to over 50 teachers

Estuarine Aquarium Keeping: one, 2-day workshop – *Estuarine Aquarium Keeping for Beginners Manual* revised

York River Habitats: one, 2-day workshop

- **Extended Program**

Blue Crabs and the Bay: one, 5-day residential course

High school students from around Virginia attended the 16th Annual Chesapeake Bay Conference with the 2006 theme “Blue Crabs and the Bay”. Students attended lectures by VIMS professors, investigated blue crab habitats, collected data on blue crabs in varying habitats, paddled to a Chesapeake Bay site to compare to more shallow water sites along the Rappahannock River, and intensively studied blue crab life history throughout the week.

- **Student Field Programs**

Oyster Restoration: Ten oyster release field trips for classes that raised oysters and monitored their growth, survival and water quality during the school year. Through our middle school project alone, we released 4,000 1-year oysters during these wading trips and in total released approximately 20,000 1-year oysters.

- **Middle School Marine Science Project**

The project “Chesapeake Studies: Linking Field Trips with the Classroom” began with the school year 2005/06 and is currently underway for its second year. The objective is to provide every 7th grade student in Gloucester and Mathews County with a meaningful Chesapeake Bay field experience that is deeply integrated into the classroom. Oyster restoration, summer flounder growth studies, and blue crab habitat studies were the major pathways. This project is expected to reach 1300 students over the two-year project.

- **Public Education**

Marine Science Day – CBNERR participated in this VIMS event, hosting a seining station and an oyster reef station where “mini oyster reef communities” were available to investigate under the microscope.

Estuaries Day – The CBNERR partnered with York River State Park to host Estuaries Day at one of CBNERR’s reserve sites, Taskinas Creek, located at the State Park. The CBNERR hosted the Marsh March station as well as aquarium displays of different Chesapeake Bay habitats and species.

After Hours Seminar Series – CBNERR partners with CCRM and VIMS to provide a monthly lecture series by local experts on varying topics. Topics from 2005 include Sand Dunes of the Chesapeake, The Tide Next Time, Marine Leeches, and Bird Migration.

Outcomes Summary

The Chesapeake Bay NERRS education program focuses on teacher training, extended student programs during the summer, a classroom and field project with middle school students, and hands-on public education. The majority of our focus is our middle school project because it requires so much time conducting classroom lessons and field trips for all schools. The Chesapeake Bay NERRS is also taking on an intern this year in the hopes to get a new public outreach program started as well as to serve as a mentor to the intern. This program is hoped to bring in public that may not know what the Reserve does in our area or what it can provide education-wise for them.

Delaware National Estuarine Research Reserve

2006 Education and Coastal Training Program Report

Submitted by Katy O'Connell, Reserve Manager – Katy.OConnell@state.de.us

Professional Teacher Development

- **Green Eggs & Sand: The Horseshoe Crab/Shorebird Education Project**

This was the sixth year of the project. Workshops were held in Delaware and Georgia (partnered with Sapelo Island NERR and University of GA) with 91 participants from 12 different states in attendance. A user survey went to all past participants in the fall of 2005 to gather information on the use and effectiveness of the curriculum. In November of 2005, GE&S was awarded first place curriculum in the National Association of Interpretation's annual media awards competition.

Public and Community Education

- **Becoming an Outdoors Woman**

The DNERR partnered with the Delaware Division of Fish & Wildlife for the Annual Becoming an Outdoors Woman weekend workshop. Katy O'Connell serves on the BOW steering committee and instructed two courses during the weekend. Approximately 100 women attended the event this year which provides women the opportunity to learn skills that encourage and enhance participation in outdoor activities.

- **Community education/public programming**

This year saw an overall decrease in attendance at public programming (20 programs offered, 119 total participants) and the DNERR is still investigating why this is occurring (timing, lack of advertising, lack of interest, duplicity of programming both internal and external, fear of West Nile Virus/Lyme disease, etc.). The programs that always filled were the popular boat and canoe trips. Minimal programming was extended to the newly opened lands at the Blackbird Creek Reserve component.

- **The Preschool Naturalist**

This program moved beyond the doors of the DNERR facility to local public libraries in the St. Jones Watershed. Each month offered a different topic for a read-aloud session, an encounter with a creature, and a craft activity. Over 400 children between the ages of 3-5, as well as siblings and parents, attended these popular programs.

- **National Estuaries Day**

The DNERR will once again partner with Comcast Cable to broadcast *EstuaryLive!* on several channels Kent and Sussex Counties in Delaware and the lower eastern shore of Maryland. This program has the potential to be broadcast in well over 200,000 homes and schools.

Formal Education/K-16 Education

- **Canon ENVIROTHON**

DNERR educators serve on the Aquatics committee for the Canon ENVIROTHON in Delaware: North America's largest environmental education competition. We train high school students in all

things water related, create the tests for the competition, and serve as judges. This year the Delaware team placed ninth in the North America competition.

- **School outreach**

Classroom outreach presentations logged 1500 hours for groups ranging from preschool to grad school. The DNERR partnered with the “What in the World” program in Delaware, which highlights science careers with presentations in schools.

- **School field trips**

We continued school field trips at the St. Jones Reserve component. Groups ranging from preschool to grad school visited the reserve. Over 2000 contact hours were logged. Unfortunately, more and more schools are having difficulty in Delaware with field trips due to costs for bussing, limits to the number of trips, and the need to bring groups upwards of 100 students (which at this time we are unable to accommodate due to staffing).

Volunteer Program

- **Americorps Volunteer Coordinator**

The DNERR once again partnered with the Delaware State Parks Americorps program to have an Americorp member located at the DNERR. This person was responsible for the coordination of volunteers and the delivery of education programs. This position is vital to increased education programming.

Miscellaneous

- **2006 NERRS Educators Meeting**

The Delaware NERR hosted the annual NERRS Educators Meeting in February. Approximately 55 staff from NERRS sites across the country attended this three day meeting in Rehoboth Beach, DE.

- **Exhibits**

New exhibits were installed in the DNERR conference center lobby. Research for the Coast, Protecting Coastal Lands, Understanding Estuaries, and Where the Rivers Meet the Sea highlight the mission, goals, and objectives of the Delaware NERR within the broader context of the NERR System. Because the conference center is used mainly by adult audiences from both Reserve-associated and outside groups, the exhibits were designed mainly to provide background information about the DNERR.

- **Staffing**

The Reserve Manager vacated his position in March. A new manager was hired in July-Katy O’Connell, the past Education Coordinator. A new Education Coordinator will be hired in early October 2006.

Elkhorn Slough National Estuarine Research Reserve

2006 Education Program Report

Kenton R. Parker, Education Coordinator – Krparker@elkhornslough.org

All the Reserve program staff has been involved in the writing of a new management plan, an exhaustive but thoughtful process that has set the stage for the next 10 years. With clearly defined conservation goals we are now looking closely at the priorities of each program, identifying opportunities for collaboration and program integration in order to get the most out of our limited resources. The Education Coordinator has completed a market analysis of non-formal education programs in a tri-county area and is moving forward with a needs assessment. These will provide input into a strategic plan being developed with help from a new education advisory committee. Meanwhile construction has begun on an education and research facility that will provide the infrastructure for new programs and collaborations.

K-12 Teacher Professional Development and Field Programs

- **Professional Development Workshops**

There were 54 teachers who participated in our professional development workshops held in the spring and summer of 2006. Offering background in the natural history, flora, fauna, research, and stewardship of the Elkhorn Slough watershed, these workshops are officially certified by California State University Monterey Bay (CSUMB) as part of the Environmental Education Certificate Program that coordinates the teacher professional development efforts of several local agencies and institutions. Our workshops receive very positive reviews and have served as a model for other programs in the area.

- **K-12 Education**

The education team worked with over 250 classes of K-12 school children for a total of 5,164 students who participated in our regular field trip programs. In addition they assisted with special bilingual outreach after-school “Watershed Institutes” in collaboration with the Monterey Bay National Marine Sanctuary MERITO (Multi-cultural Education on Resource Issues Threatening the Oceans) Program.

- **Virtual Field Trip Project**

We continued development of the virtual field trip project, a collaboration with the technology department at CSUMB, allowing classrooms to visit the Reserve via the internet. Through the use of this technology we are able to help teachers keep their students engaged with the Reserve throughout the school year, following the seasonal changes and ongoing research/monitoring efforts at the Reserve before and after their actual field trip to the site. Both teachers and students involved in these pilot broadcasts have been thoroughly engaged and excited with the prospects of an expanded and more permanent program.

- **Summer Programs**

Offered support to several summer programs that use our site for their outdoor classroom and environmental education activities: Camp SEA Lab Monterey Bay summer youth programs, (Science Education and Adventure, a program offering field experiences for youth to inspire conservation of marine resources); the RISE program (Recruitment In Science Education) sponsored by CSUMB to encourage minority youth to seek careers in science and pursue college educations; COSMOS, a high

school science program sponsored by the University of California at Santa Cruz; Upward Bound, a science education program for inner city youth sponsored by Monterey Peninsula College; the Monterey Bay Aquarium's Young Women In Science program; Ventana Wilderness Society's Natural Science Discovery Camp, and Watsonville Public Works Department "Creeks to Sea" program.

Public Programs and Visitor Center Support

- **Visitors**

The education and outreach team of staff and volunteers welcomed over 40,000 visitors to the Reserve this year, fielding their questions and directing them to the variety of opportunities where they may engage with this place, its geography, history, habitats, and its nature.

- **Volunteers**

Our 90 active volunteers put in over 7,200 hours as ambassadors for the stewardship of Elkhorn Slough and its watershed. They worked on restoration projects, helped with research and monitoring, and provided 200 tours of the Reserve to 1800 people who participated in the regularly scheduled weekend hikes or who arranged for special naturalist guided tours.

- **Presentations**

Provided presentations for 27 college instructors from local institutions, giving special tours to 625 students as part of courses on coastal ecology, wetland habitats, environmental education, interpretive exhibit design, and resource management.

- **Earth Day**

Participated in the Día del Niño/Earth Day celebration in Watsonville, a collaboration between the City of Watsonville Parks and Recreation Department and numerous environmental organizations and public agencies that attracted over 3,000 people.

Program Highlights Summary

- **WORKSHOP: Introduction to Ecology and Regulation of Tidal Wetlands in Central California and the San Francisco Bay**

In cooperation with San Francisco Bay National Estuarine Research Reserve, PRBO Conservation Science, and numerous other partners the Elkhorn Slough CTP hosted a one day workshop defining tidal wetland ecosystems, their priority conservation threats, and how regulators approach their conservation. Topics: tidal wetland plant, bird, and fish communities; tidal wetland regulations and their effectiveness.

Decision makers trained: 68

Outcome Summary: Participants reported a better understanding of the diversity of tidal wetland systems and a desire to more frequently network with others working with tidal wetlands.

- **WORKSHOP: Defining the Science of Monitoring Grasslands for Management Goals**

In November, 2005, the Elkhorn Slough CTP in partnership with the California Native Grassland Association sponsored a two-day workshop on grassland management and monitoring. The target audience was Restorationists, conservation lands managers, and researchers. Prior to the workshop, the CTP performed an audience needs assessment asking about the priority goals and monitoring methodologies of conservation lands managers stewarding grasslands of central, coastal California. The results of this needs assessment were then sent to a panel of 16 of California's foremost grassland ecologists in advance of day one of the workshop. The goal of this first day was to discuss needs of grasslands managers and produce a cohesive set of recommendations for better grassland conservation goal setting as well as a standardized, effective and efficient monitoring protocol for conservation goals. During day two, the experts met with 34 leading grassland stewards to present the conclusions from day one, followed by a panel discussion and moderated dialogue.

Decision makers trained: 50

Outcome Summary: The workshop conclusions included a need for more scientific discussion on grasslands monitoring and better, more realistic goal setting by managers.

- **WORKSHOP: Adaptive Restoration of the West Coast's Tidal Wetlands**

In January, 2006, the San Francisco Bay NERR partnered with the Elkhorn Slough, Tijuana, and South Slough CTP's to host a large workshop focused on the emerging science and practice of adaptive management as it is applied to tidal wetlands. We were blessed to be able to have the leading expert in this field, keynote speaker Dr. Joy Zedler, who was joined by every leading tidal wetland restoration expert in California (and beyond!) during the day's workshop. Regulators, biological consultants, restorationists, researchers, and conservation lands managers were the major audiences attending. The history of the vast majority of tidal wetlands restoration projects was presented and discussed at some point during the day, including during breakout working group

sessions during the afternoon. These working groups were led by leading restoration practitioners and focused on case studies of the adaptive restoration approach to tidal wetlands.

Decision makers trained: 183

Outcome Summary: The audience learned about the history of a number of tidal wetland restoration projects, to apply lessons learned to the work they are now proceeding on. A number of attendees expressed special appreciation for networking with their colleagues.

Other Efforts

The Elkhorn Slough CTP website continues to attract broad use: 1000 visitors use the website on a daily basis. They most frequently use reference pages on specific CTP training subjects, and they download peer-reviewed publications as well as scientific datasets that the CTP has provided on those subjects.

Grand Bay National Estuarine Research Reserve

2006 Education Program Report

Jennifer Buchanan, Education Coordinator – Jen.Buchanan@dmr.ms.gov

Program Highlights

- **Gulf Guardian Award for BioBlitz**

The Gulf of Mexico Program awarded GNDNERR a third place Gulf Guardian Partnership Award for the Reserve's first "Grand Bay Bioblitz" which was held between April 29 and May 1, 2004 at the Grand Bay NERR/National Wildlife Refuge. The Bioblitz was a 24-hour marathon inventory of the plant and animal species found within the reserve and refuge. This research/inventory process was integrated with educational activities in order to promote the importance of maintaining biodiversity within our coastal habitats.

Outcome Summary: This event did a lot to publicize our reserve. Planning for this activity required across-the-board integration among all our sectors and volunteer organizations.

- **Website is Launched**

A new website, <http://www.grandbaynerr.org>, which has been designed to provide the communities along the northern Gulf of Mexico with information regarding estuarine and coastal issues, was recently launched by the Mississippi Department of Marine Resources' Grand Bay National Estuarine Research Reserve (NERR). The site contains information that is pertinent to educators, researchers, students, community members and visitors to the reserve which is located in the southeast corner of Mississippi near the towns of Moss Point and Pascagoula.

Outcome Summary: This is another project that required full sector coordination. We have learned that maintaining and updating a website can be a tedious but rewarding activity. We have received a lot of positive feedback from the community on the site, and we are always looking for new ways to make it more useful to our various user groups.

- **New Brochure is Published**

Our brochure has been updated to place more emphasis on the work of our individual sectors. Each of you will receive a copy at the meeting.

- **K12 Education**

Our reserve shares a K12 educator with the University of Southern Mississippi's J. L. Scott Marine Education Center (MEC). Rick Ranew, our K12 Specialist spends from September through February with us and the rest of the year over at the MEC. Rick reaches out to hundreds of students in many ways including:

- Regional Ocean Science Bowl
- Sea Camp and Mini Camps
- On the Road Programs

Outcome Summary: Both the MEC and our center were destroyed during Hurricane Katrina, but both facilities have now come back in temporary facilities. This shared educator position is working out quite successfully. Rick has been able to reach out to many more students by participating in this partnership, than if he was working out of our site alone.

- **Major Speaking Engagements**

This year the Grand Bay NERR participated in the following speaking engagements:

- 7th Annual Coastal Strategies Development Conference on Smart Growth— “Coastal Habitats-Diversity and Sustainability”
- Pearl River Basin Symposium--“The Importance of Freshwater to Mississippi’s Estuarine Habitats”
- Mississippi Environmental Educator’s Alliance Annual Meeting--“The Impacts of Hurricane Katrina on Mississippi’s Coastal Resources”

- **Education Alliances**

Education alliances of the Reserve have been established with the following organizations:

- Gulf of Mexico Alliance (GOMA) and the GOMA Environmental Education Network—serving on an educational advisory committee
- National Marine Educators Association/SAME—Regional Educator of the Year
- South Mississippi Environmental and Agricultural Coordination Organization (SMEACO)—serving on steering committee to promote environmental education and ecotourism events such as our Wild Wings Migration Festival and Earth Day events.
- Mississippi Environmental Educator’s Alliance—board member

Outcome Summary: Speaking engagements and educational alliances go a long way in the development of the community ties that we strive to develop at the reserve. Not only are we able to spread the word about the Reserve, but we are also able to impress upon people located in the upper regions of our coastal watersheds, the importance of managing point and non-point pollution. Many of these talks/powerpoint presentations are being tweaked and added to the website as pdf files for use by everyone.

Program Highlights

- **Gulf of Mexico Alliance Public and Stakeholder Meetings - January, 2006**

The Gulf of Mexico Alliance, in partnership with the Grand Bay NERR's Coastal Training Program, hosted two information exchange meetings in Biloxi, Mississippi designed to inform stakeholders and gain local perspectives on critical issues related to the environmental and economic health of the Gulf of Mexico. Strategies for reducing nutrient loading, improving water quality, restoring coastal wetlands, identifying critical Gulf habitats, and providing environmental education were discussed at the meetings.

Outcome Summary: One hundred and forty people from both Mississippi and Alabama participated in these events. Many of the reserve's sectors integrated to make these meetings a success. The results of this meeting were incorporated into an Action Plan for the Gulf of Mexico. http://www.dep.state.fl.us/gulf/files/files/GulfActionPlan_Final.pdf

- **Managing the Impacts of Residential Docks and Piers in Mississippi and Alabama - February, 2006**

The CTP Coordinators from the Grand Bay and Weeks Bay Reserves partnered to host a 2-day dock and pier workshop in Gautier, Mississippi. The workshop was designed to provide coastal decision-makers with information, skills, and tools to evaluate and manage the environmental, visual, navigational, and public access impacts associated with the construction and maintenance of residential docks and piers. Target audiences included building permit staff, consultants, engineers, federal and state regulatory staff, land use planning staff, and municipal officials.

Outcome Summary: Agenda highlights included an overview of the science related to managing environmental impacts of docks and piers, navigation and public access issues, visual impacts, and best management practices and regulations. Because many of our docks and piers were destroyed in the recent Hurricane Katrina, this information was provided at the most opportune time to facilitate a better rebuilt community.

- **Green Building is Storm Resistant Workshop and Technology Fair - June, 2006**

In an effort to contribute to the rebuilding strategies taking place along the Mississippi Gulf Coast, the reserve hosted a green building workshop and technology fair to teach professionals about sustainable, storm resistant building design. In addition to the discussion of green and storm resistant building features, workshop facilitators provided participants with lists of funding sources and tax incentives for green building projects, including an explanation of the Gulf Opportunity Zone Act of 2005. Building design options for residential construction, building codes adopted by each coastal city and county, and reference materials on green construction materials such as insulated concrete forms, cool metal roofing, cisterns, and lumber alternatives were also provided.

Outcome Summary: In conjunction with the Green Building Workshop, Grand Bay's CTP sponsored meetings between green building experts and county planning staff as well as local officials to discuss green building opportunities in Mississippi's coastal communities. An immediate outcome of the green building workshop and technical assistance program was that the city of Moss

Point adopted an environmentally sustainable development plan for its waterfront. The first objective of this plan is to renovate Pelican Landing, the city's existing waterfront conference and convention center, to LEED standards.

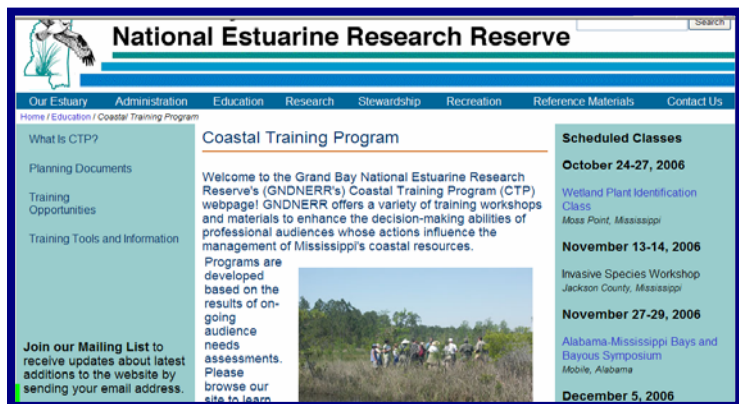
- **A Practical Guide to Conservation Easements - June, 2006**

Grand Bay partnered with the Land Trust for the Mississippi Coastal Plain to host a workshop for planners, officials, landowners, realtors, attorneys, appraisers, land managers, and accountants about the environmental and economic benefits associated with conservation easement agreements. In August 2006, Congress approved an expansion of tax incentives for conservation easements, which has heightened awareness of and interest in conservation easements among landowners in Mississippi.

Outcome Summary: Since Hurricane Katrina, land owners and local governments have been seeking information on possible ways to preserve waterfront areas that are high risk development properties. This workshop provided answers to many of their questions.

- **Our New Reserve Website Debuted www.grandbaynerr.org —July 06**

Coastal Training Pages: <http://www.grandbaynerr.org/education/ctp/>



Summary: This site allows for online registration and gives specifics of upcoming and results of past workshops and coastal training opportunities. The program's planning documents and links to specific training tools are also posted online for easy access.

Great Bay National Estuarine Research Reserve

2006 Education Program Report

Kelle MacKenzie, Education Coordinator – Kelle@greatbay.org

Program Highlights

- Offer spring and fall school programs on natural and cultural history of the Great Bay Region. Reach approximately 4000 students annually at 3+ contact hours per child. Programs are run using staff and core of approximately 50 + volunteers.
- Summer “Bayventures” programs for children ages 7-11.
- Summer “Bayviews” adult discussion series, wide range of topics from CTPesque to typical “bugnight for kids” type programs
- Interpretive Kayak programs in the Great Bay Estuary, topics covered include research, land acquisition and stewardship efforts, natural and cultural history.
- Winter Bayventures programs, winter break camps for kids 7-11.
- New Education Facility dedicated this spring: Hugh Gregg Coastal Conservation Center, featuring Geo-thermal heating and cooling, composting toilets, etc.
- Ongoing educational partnership with University of New Hampshire Sea Grant Program.
- Strong friends group partnership with the Great Bay Stewards. Work cooperatively on fundraisers to support education efforts such as the Great Bay 5K road race (500+ runners), Art of Great Bay show/sale, and fundraising concerts.

Evaluations of school programs continue to reveal we are meeting the needs of the science and cultural history standards for New Hampshire students, while at the same time introducing children and adults to the Reserve and the natural and cultural resources it offers. Reflection sessions highly favorable. Increased visitation and press coverage continues to occur, as do donations to our education programs and efforts at the Center. We formally changed our name this year from the Sandy Point Discovery Center to the Great Bay Discovery Center. Administration of signage changes etc, ongoing.

Great Bay National Estuarine Research Reserve

2006 Coastal Training Program Report

Steve J. Miller, Coastal Training Program Coordinator – Steve@greatbay.org

- **River Buffers Technical/Science Support**

Target audience: State Lawmakers. A local state representative contacted CTP for scientific information to strengthen state river buffer regulations. NH municipalities had proposed building an ash dump on an oxbow island in a major river. The CTP provided technical/science support on river dynamics and watershed management to the committee overseeing the proposed legislation. Outcome: The stronger buffer bill passed the Resources, Recreation, and Development Committee and the House. The Senate tabled it until the 2007.

- **Wetland Buffer Restoration and Outreach Project**

Target audience: Local land use boards and buffer owners. CTP is working with the City of Portsmouth on a grant to restore a wetland buffer and use it as a demonstration site for workshops. Project outreach materials include landscaping plans for owners of wetland buffers using native vegetation that provide for human use and ecological function. Restoration phase is complete and work is beginning on outreach materials. Project completion is scheduled in 2007.

- **Great Bay Area Radio spot on stormwater/runoff issues and management**

Target audience: Great Bay Area Radio listeners. The radio spot was a done in cooperation with a local watershed coordinator and covered non-point pollution issues, watershed management, and volunteer stewardship opportunities.

- **Regional Sewage Planning Education Event**

Target audience: The Great Bay Estuary Commission - local and state decision makers. The GBEC is tasked to study regional sewage options for the seacoast of NH. GBNERR is on the GBEC and CTP has been providing training support. CTP served on education sub-committee and hosted this event focusing on sewage technology and treatment options. This event was done just prior to a planning charrette and was designed to level the knowledge base of participants.

- **Natural Resources Outreach Coalition Fremont, NH**

Target audience: local land use boards. Fremont is one of the 2006 NROC towns. The process began in April with planning meetings for the Dealing with Growth Presentation in June. Follow-up phase is ongoing with work on two committees, one dealing with Land Conservation and the other Open Space, and a group updating land use regulations to include enacting new zoning regulations and new conservation subdivision regulations.

- **Salt Marsh Ecology and Stewardship Event**

Target audience: local business leaders and future CDMs. CTP designed and implemented this salt marsh ecology/stewardship program with a local company that provided 115 volunteers who learned about salt marsh ecology and function and then conducted a stewardship project that removed over 30 tons of wood debris from 1/2 mile of salt marsh in the Reserve.

- **UNH Stormwater Center Workshop**

The year the CTP targeted a select group of engineers who design and work on the majority of the developments on the seacoast of NH. 20 engineers were recruited and sponsored to attend the

stormwater workshop. The workshop includes a tour of 13 different stormwater treatments, function of each, and review of water quality performance data and peak flow reduction data.

- **Effects of Urbanization on Water Quality Workshop**

Target audience: local land use boards. This workshop highlighted a local study of 10 sub-watersheds with a range of impervious surface cover from 1.8 to 38%. This important study had been released in print but this was the first presentation of the data to local land use board members. Concentration of selected chemical constituents and macroinvertebrate community data were evaluated in relation to the effects of urbanization in a watershed.

- **Aquatic Ecology Workshop**

Target audience: local land use boards. The CTP working with UNH Cooperative Extension, a key education partner, designed and helped teach this workshop. Focusing on a watershed approach to create successful and sustainable water quality protection measures, the workshop covered stream ecology and ecological function, macroinvertebrate communities as an indicator of water quality, a case study of a successful local watershed management approach, and take home materials that support land use decisions that protect water quality.

Outcomes Summary

The GBNERR CTP continues to build strong working partnerships that advance the mission of CTP. There are growing demands for 1:1 CTP:CDM technical/science support; increased partnership in the resources used, design of, and implementation of workshops; better refinement of target audiences; effective use of local resources; and stronger content in workshops. The CTP has provided resources to the regulatory process to strengthen environmental regulations on the state and local level, supported local land use planning efforts, improved ecological understanding of estuarine systems and associated habitats, implemented stewardship activities of estuarine resources, facilitated information transfer to key users of that information, and provided educational resources to support regional sewage planning.

Guana Tolomato Matanzas National Estuarine Research Reserve

2006 Education Program Report

Janet Zimmerman, Education Coordinator – Janet.Zimmerman@dep.state.fl.us

September 24, 2006 was the first anniversary of the opening of the GTM Reserve's Environmental Education Center. The center has seen over 18,000 visitors in its first year and is open 7 days a week. General public education programs include weekend nature movies, family fun hour, brown bag lunch lectures, bird ID class, coastal science seminars, artist receptions, nature walks, and starry night programs. School field trips are available for grades 4th, 7th and high school. A self guided field trip program is being developed for all other grades. Teacher workshops included Healthy Water, Healthy People, Summer Water Institute, Project WET, and Saltwater species collectors permit.

To increase awareness about the new Environmental Education Center and GTM Reserve's educational offerings, the GTM Reserve hosted St Johns County School District's monthly principal and assistant principals' meeting. All of the county's principals and assistant principals experienced a hands-on field study similar to what the students would attend on a class visit to the GTM Reserve and were able to provide input for future program development.

- **First year of L.I.F.E. at GTM Reserve**

Learning in Florida's Ecosystem (LIFE) is a state initiative to establish a series of field-based, environmental science education programs at FL NERRs and other conservation properties in FL. The core guiding principal of LIFE is to create multi-day field experience using current technologies in environmental science with emphasis on observation and inference as critical components of the scientific method. The LIFE program helps to create long term partnerships between GTM and the local school district that include teacher professional development, program content driven by teacher identified needs and an integration of all subject areas by connecting field experiences with pre and post classroom lessons. Field activities include: beach profiling, sand investigation, long shore current station, marsh vegetation quadrates, water quality testing and plankton study.

- **Assessment of Teacher/Student needs**

The 7th grade Learning in Florida's Environment (LIFE) program was designed based on conversations with School District Science Coordinator and 7th grade teachers. During the LIFE teacher workshop teachers were asked to identify strands that they or their students needed the most help on.

- **GTM NERR-NEWS**

GTM NERR-NEWS celebrated the publication of its 60th issue. Now in its fifth year, GTM NERR News is a free email newsletter sent out the first of every month to over 1500+ subscribers informing them about the Reserve's activities and environmental education opportunities in Northeast Florida.

- **Landrum Legacy**

The Landrum Legacy students completed their second year project to learn GPS and create a GeoCache trail treasure hunt. The treasure hunt lists the coordinates for the "natural gems" that make Guana special.

- **Increasing Reserve Visibility**

GTM Reserve and its education programs have been featured monthly on Flagler College Radio 88.5FM on Saturday mornings. Comcast Cable came to the GTM Reserve to film a half-hour feature for its local programming “Comcast Connects”. The half hour segment focused on the mission of the GTM Reserve and helped get the word out about what natural resources and activities are available for the public to enjoy. The April issue of Florida Monthly Magazine featured the GTM Reserve Environmental Education Center.

Guana Tolomato Matanzas National Estuarine Research Reserve

2006 Coastal Training Program Report

Martin Healey, Environmental Trainer – Martin.Healey@dep.state.fl.us

Program Highlights

GTMNERR partnered with the Florida Division of Forestry to offer the Fire Ecology and Florida Firewise Program. This workshop helped to improve ability of coastal decision makers to understand prescribed fire management within the GTM Reserve, to value the benefits of prescribed fire, and comprehend Florida fire regulations.

GTMNERR hosted the Department of Environmental Protection Stormwater Academy NPDES Phase II Stormwater Education Workshop. The workshop served county officials in the Northeast Florida area, discussed the requirements to obtain permits and provided examples of local storm water education programs.

GTM Reserve hosted a Stormwater, Erosion and Sedimentation Inspector Training class for 36 Environmental Professionals. The goal of the program is to increase the proper design, construction, and maintenance of erosion and sediment controls during construction and to assure the proper long-term operation and maintenance of stormwater systems after construction is completed.

The Fall Southeast Implementation Team (SEIT) for the Recovery of the North Atlantic Right Whale Conference was held at the GTM Reserve as right whale scientists on the Nation's east coast prepare for this year's calving season. SEIT is a multi-agency and citizen advisory group. The team develops management and research recommendations and assists in implementing the recovery plan.

Sierra Club whale symposium was held at the GTM Reserve to inform members and citizens about the conservation issues regarding the North Atlantic Right Whale and other marine mammals. (January 2006)

Sea Turtle Stranding and Salvage Network workshop was held at the Guana Tolomato Matanzas National Estuarine Research Reserve Environmental Education Center. The workshop reviewed the importance of the STSSN, current trends in sea turtle mortality, and the strategies for collecting stranding data and completing the reporting form.

Prescribed Fire Workshop was held to share information about upcoming prescribed fire activities at GTMNERR. GTM staff, Partner Agencies and local citizens were involved in this workshop that explained the who, what, when and why's involved in performing a prescribed burn. (February 2006)

Landscaping BMP workshop (February 2006) was offered to the landscaping and pest management industries in St Johns County. The primary goals of this workshop were to teach best management practices and increase awareness and compliance with the St Johns County Fertilizer ordinance. Topics included turf management, irrigation, landscape design, and pesticide BMP.

NE FL Sea Turtle Patrol Coordination meeting: GTM Reserve staff coordinated a gathering of all Duval, St Johns and Flagler County sea turtle patrol organizations. This meeting helped to increase communication amongst patrol organizations, and provide for networking and additional training. (April 2006)

GTM Reserve hosted and participated in the First Southeast Regional Fire Learning Network lead by the Nature Conservancy. The vision of this network is to develop partnerships which will work to enhance ecosystem restoration, conservation and risk reduction through the successful application of prescribed fire, foster innovation, and transfer lessons learned to other projects, scientists, and key decision-makers. NGOs, Local, State and Federal agencies were in attendance at this meeting. (April 2006)

- GTM Reserve hosts the Southeastern Estuarine Research Society (SEERS) meeting of 150 students and researchers (March 2006)
- Southeast Right Whale Recovery Plan Implementation Team Meeting. (May 2006)
- Submerged Lands and Environmental Resources Program (SLERP) meeting and field trip (May 2006)

- **International Visitors**

GTM Reserve hosted two international visitors, Ms. Maida Briceida Martinez and Mr. Arquimedes Antonio Saenz from Panama sharing with them the Reserve's experiences of building an environmental education center, planning exhibits and programs, and restoring and protecting cultural resources on state lands. These visitors are invited to the United States under the auspices of the State Department's International Visitor Program. The GTM Reserve is one stop in their ten day U.S. Department of State-sponsored program to exchange ideas on historic restoration sites and museums.

Hudson River National Estuarine Research Reserve

2006 Education Program Report

Jean Valla McAvoy, Education Coordinator – jvmcavoy@gw.dec.state.ny.us

Laurie Fila, Education Specialist – Lafila@gw.dec.state.ny.us

Program Highlights

- **Public Canoe Series**

Guided canoe trips for the general public at 3 of 4 reserve sites and additional tidal wetland on Hudson River Estuary. Introduction to tidal wetlands, the work of the Hudson River NERR, featuring current research on invasive species, submerged aquatic vegetation, improvements in understanding the benthos, etc.

- **Community Canoe Programs**

Guided canoe trips for a variety of community groups, particularly at-risk youth, covering much the same material as the public canoe trips.

- **Tivoli Bays Talks**

A monthly lecture series devoted to the connections between the Tivoli Bays, the Hudson River Estuary and the Village of Tivoli.

- **Family Programs at the Visitor Center**

Monthly programs devoted to children and families celebrating water, estuaries and the Tivoli Bays. New weekly series, *Live Wednesdays*, introducing live animals from the Tivoli Bays to general public.

- **Miscellaneous Community Programs**

Continued participation in The Hudson River Project, a year-long, monthly series of guided conversations attempting to find common language between different Hudson River constituencies. Shared authorship of the Statement of Shared Values, a collaborative effort of representatives of the religious, philosophical and environmental communities of the Hudson River Estuary.

- **Regional Festivals**

Participation in various regional events, such as the Hudson River Regional Festival, the Hudson River Valley Ramble, Hudson River Sweep, Hudson River Shad Fests and smaller community or business events.

- **K – 12 Education: SWaMPing the Classroom**

Interactive, web-based, education program aimed at middle-school students, using SWMP data for the 5 reserve tributaries of the Hudson River Estuary in a watershed perspective. Review of beta version of pilot program solicited at meeting of key Hudson River educators, Teaching the Hudson Valley 2006 Institute participants and NMEA 2006 Conference participants. **Norrie Point**

- **Environmental Center**

Groundwork laid for supporting K-12 education at new headquarters, with design of wet classroom and restoration of floating dock.

- **Snapshot Day**

Participation in estuary-wide event, hosting 120 6th graders.

- **Miscellaneous**

Slowly expanding our presentations to schools such as the Dutchess County Environmental Academy, Brendon Montessori School and Bard College Summer Scholars.

- **Post Secondary Education**

Continue to provide field-based programs to post-secondary classes upon request. Provide one day of a week-long summer field course: The Hudson River Watershed, Source to Sink.

- **Professional Teacher Development**

Collaboration with various organizations (such as Cornell University Center for the Environment, Ulster County BOCES) to offer field and classroom components of teacher workshops.

- **Norrie Point Environmental Center**

Preparations for relocating reserve headquarters in the fall of 2006: development of classroom and education facilities, initial exhibits, initial phases of program development.

- **National Estuaries Day**

Participation in National Estuaries Day focus of the four day Hudson River Ramble and Snapshot Day on the Hudson for K-12 audiences.

- **Interpretive Projects**

Installation of native American artifact collection in Tivoli Bays Visitor Center, two kiosks for Stockport Flats site, interpretive panels for Piermont site and modest initial interpretation for Norrie Point Environmental Center.

Hudson River National Estuarine Research Reserve

2006 Coastal Training Program Report

Emilie Hauser, Estuary Training Program Coordinator – Eehauser@gw.dec.state.ny.us

- **Managing Visitor Use**

Land managers representing national, state and municipal parks, local land conservancies and preserves attended this one-day workshop. Participants learned from Dr. Christopher Monz of St. Lawrence University on a framework for selecting effective indicators of resource condition and recreation use. They applied this knowledge to local issues identified in previous workshops.

- **Invasive Plant Species: An Introductory Workshop for Palisades Interstate Park Commission Staff**

Park staff from the west side of the Hudson learned identification, biology and threats of the top invasive plants in their parks, control and management strategies and about invasive forest insects. After classroom presentations, participants viewed both native and invasive plants in a local state park.

- **Mile-a-Minute Vine (*Polygonum perfoliatum* L.) Early Detection and Rapid Response in the Lower Hudson Estuary Watershed**

Planning workshops were held early in the year to prepare for early detection and rapid response of this invasive annual plant. A spring kick-off training for volunteer weed busters and weed watchers covered plant identification, biology, threats, control and disposal, outreach and education. During the summer, organized weed pulls were held, volunteer weed watchers monitored lands surrounding known infestations and the public reported plant sightings in response to the publicity campaign. An autumn workshop will review efforts and plan for 2007. This is a collaborative effort in a six county region led by the HRNERR Estuary Training Program and includes a diverse group of stakeholders and partners.

- **Hudson River Estuary Shorelines: Soft Engineering Solutions to Shoreline Stabilization**

The workshop was the culmination of a study of soft shoreline stabilization techniques which included a literature review and a report on alternatives applicable to the Hudson Estuary. This project was an integrative effort with the HRNERR Stewardship and Training Coordinators. Topics included an introduction to the estuary, types of natural and man-made shorelines, engineering design constraints and restoration options. Participants, who included consulting engineers, planners and governmental regulators, broke into groups and solved a design problem.

- **Submerged Aquatic Vegetation in the Hudson Estuary**

A series of workshops are planned state and federal agency personnel this autumn to present the latest information about trends, status, and functions of Hudson River Estuary submerged aquatic vegetation in order to promote informed management of this vital resource.

Outcome Summary

Hudson Valley land managers, including our partners that manage Reserve lands are more aware of invasive plants, their threats, and how to inventory, control and manage them. Control and research efforts are taking place on Reserve lands.

There is a keen interest by land managers in visitor use issues. A large proportion of Hudson Valley land managers have now attended the Coastal Services Center's "Managing Visitor Use" workshops, either sponsored by HRNERR or as a spin-off by the Hudson Valley Greenway. The estuary training program received technical assistance from the National Park Service Rivers & Trails Program to help park & resource managers develop more effective Visitor Use Management strategies, resulting in the workshop on indicators held this year. Another workshop in 2007 is planned.

Based on feedback from the workshop, there is interest by engineers and developers in using soft engineering techniques for shoreline stabilization, but they want evidence that the techniques will be successful in the Hudson, with its unique geology and erosion caused by tides, ice and large ship wakes. There is definite interest in a demonstration site.

Jacques Cousteau National Estuarine Research Reserve

2006 Education Program Report

Janice McDonnell, Education Coordinator – Mcdonnel@marine.rutgers.edu

- **MARE Summit**

Rutgers Institute of Marine and Coastal Sciences (IMCS) and the Jacques Cousteau National Estuarine Research Reserve (JCNERR) have been implementing the Marine Activities and Resources Education (MARE) program for 10 years. To celebrate this achievement, the JCNERR hosted the MARE Summit: A Ten-Year Celebration of Success. This four-day conference featured select MARE educators who developed novel teaching strategies, resources, or lesson plans for MARE. The teachers presented adaptations of MARE, tips for MARE implementation as a whole school program, and unique and innovative ways of customizing MARE to fit any school setting.

- **6th Grade MARE**

One of our most successful MARE schools, Eisenhower Intermediate, is undergoing a transition from a 4th – 5th grade school to a 5th – 6th grade school. A significant number of teachers from Eisenhower Intermediate have been trained for MARE and focus on the 4th and 5th grade habitats. During this three-day professional development program for the new 6th grade teachers, the focus was on island habitats. We customized the MARE lessons so that they reflected the “island habitat” in New Jersey: barrier islands. Participants learned about the dynamics of barrier islands and the important fauna utilizing this habitat like horseshoe crabs and red knots.

- **Public and Family Programs**

In partnership with the Tuckerton Seaport, the Jacques Cousteau National Estuarine Research Reserve (JCNERR) offered a suite of family and public educational programs focused on science research, cultural history and watershed studies within the Reserve. In an effort to increase public awareness and to involve the public in activities throughout the winter months, this partnership was developed.

The goal of these cooperative programs has been two-fold:

- 1) To inform the public about the research that is happening “in their own backyard” and
- 2) To allow the public to experience the watershed and the estuary “first hand” by offering field based educational programs

The winter Lunch and Learn lecture series has been a great success. These programs are offered once monthly and are typically focused on “critters” in the estuary. People are encouraged to bring along their lunch and learn from the speaker(s) who is an expert in their respective field. The presentation usually last about an hour and time is allotted for questions and answers.

Outcome Summary

As a result of the MARE Summit, the JCNERR will be producing a “MARE Best Practices” guide. This document will highlight the essential elements of a quality lesson as well as the whole school approaches that help achieve success with the MARE program. This guide should be available to educators through the education section of the JCNERR website in late fall 2006.

Due to the overwhelming success of the winter 2006 lunch and learn programs, the 2006 – 2007 public program series will commence in fall of 2006 and extend into May of 2007. As this program continues to increase in popularity the JCNERR and the Tuckerton Seaport will benefit from increased recognition of our quality programs.

Jacques Cousteau National Estuarine Research Reserve

2006 CTP Program Report

Lisa Auermuller, CTP Coordinator – Auermull@marine.rutgers.edu

- **Stormwater Technology Conference**

As a major focus of the JCNERR CTP, various stormwater programs for local municipalities continued into 2006. A highlight of our outreach was a stormwater technology conference, modeled after similar conferences held at the NCNERR and the North Inlet NERR. This conference featured stormwater technology vendors and the products that they offer to help with local stormwater management. New Jersey's Corporation for Advanced Technologies had previously approved the technologies supplied by the participating vendors.

- **Coastal Hazards Mitigation Outreach**

In light of the Katrina disaster of 2005, coastal municipalities are more concerned than ever about the impacts of coastal storms. In partnership with the New Jersey State Police's Office of Emergency, Federal Emergency Management Agency (FEMA) and the New Jersey's Department of Environmental Protection's Coastal Management Program the JCNERR offered a CTP workshop giving an overview of the importance of having a hazard mitigation plan in place. As a follow-up, the CTP offered a technical assistance seminar at which FEMA demonstrated the use of their hazard mitigation toolkit. Participating municipalities were able to use the toolkit at computer stations during the seminar.

- **Understanding Land Use Regulations Online Course**

As a pilot, the JCNERR offered an online course through the New Jersey Department of Community Affairs. It focused on the often daunting and confusing world of land use regulations. The course was offered to local construction code officials who are required to do continuing education through the DCA in order to fulfill their license requirements. The five-module course lasted 5 weeks and each module ended with a short "quiz" to assess knowledge gained.

- **Continuing Education Courses**

Co - sponsored courses with the continuing education department at Rutgers University continued into 2006. Five courses were co-sponsored including the following topics: Introduction to Wetlands, Introduction to Coastal Erosion, Coastal Project Review, Freshwater Wetlands, and Goose Management. Attendance at these courses provided municipal participants with continuing education credit hours through Rutgers University. These types of courses were identified as a need through the December 2005 needs assessment survey.

Outcome Summary

Stormwater management outreach will continue through the end of 2006 and into 2007. At the end of 2006 a formative evaluation will be completed to assess the effectiveness of the three years of stormwater training.

As a result of the hazard mitigation planning technical assistance seminar, the municipalities in Ocean County are working cooperatively to develop a multi- jurisdictional hazard mitigation plan. By doing so, the county will be eligible for mitigation funding through FEMA.

The pilot online course was so well received that JCNERR was asked to offer it again in the fall of 2006. Additionally, we were invited to develop another course to be offered in the spring of 2007.

Jobos Bay National Estuarine Research Reserve

2006 Education Program Report

Sandra J. Lebrón- Education Coordinator (EC) – Slebron@jbnerr.org or sanjileb@gmail.com

Program Highlights

- Coral Reef Workshop by Alida Ortiz, Ph.D. author of “Los Arrecifes de Coral” (“The Coral Reefs”) a Sea Grant publication (2005). This educational material was distributed among teachers and includes a book, CD and Lesson Plan Manual.
- The Education Committee collaborates with the EC and the Jobos Bay Environmental Educator Nilda Peña in the development of a survey and educational materials about Jobos Bay.
- *2nd Summer Workshop “Los Guardianes del Estuario Bahía de Jobos 2006”* (“The Guardians of the Jobos Bay Estuary”) with the participation of 6th grade students and 12th grade volunteer students. They participated in field trips and learned about the history of Aguirre, the ecosystems of the Reserve and, bird watching.
- Sea Turtles Workshop by Lesbia Montero, Education Coordinator of Sea Grant College Program University of Puerto Rico. The participants were the Rangers of the Department of Natural and Environmental Resources and Jobos Bay Staff.
- The Birds Endangered Species presentation by José Salguero, of the “Ornitology Society of Puerto Rico” for 20 students of the Elementary School Woodrow Wilson of Aguirre.
- Exhibit about Jobos Bay in the Health and Security Fair of Wyeth, in Guayama.
- We receive approximately 1,100 K-12 students and teachers, undergraduate and graduate students and adults from 15 different municipalities of Puerto Rico.
- Jobos Bay facilities were use for a group of teachers from USA and PR that were part of an exchange program of the Wisconsin University.

Impacts

- The Jobos Bay Visitor Center and Information Center are use by the Aguirre community and some schools near the reserve almost everyday because they don’t have a library.
- Teachers from K-12 schools, home schooling, and universities include the Reserve in their educational program as a place for field trips, integration of the educational materials of Jobos in their curriculum among others activities.
- We have a collaborative agreement with the Sea Grant College Program UPR-Mayagüez for the preparation of the Jobos Bay Newsletter (“Boletín Informativo of Bahía de Jobos”), and other educational materials.
- The Jobos Bay Staff assessor and offered workshops to a group of the communities from Guayama and Salinas municipalities that were part of a project of the Government Program of Special Communities of Puerto Rico for the training of community members for Eco-tourism.

Jobos Bay National Estuarine Research Reserve

2006 Coastal Training Program Report

Lillian Ramírez Durand – ctp@uprm.edu

- **Economic Valuation of Natural and Environmental Resources Seminar**

This seminar represented the first training activity in natural resources economics for managers and planners in Puerto Rico. Participants receive information of available techniques to provide an economic value to the natural resources in the case of natural disasters, and illegal development. Due to the success of the seminar, JBNERR CTP is planning to provide this at least two more times.

- **Smart Growth: Definition and Principles**

Jobos Bay CTP coordinated and conducted a requested workshop with a practical session about Smart Growth and its principles. The participants had the opportunity of make a community design applying the concepts learned in the theoretic session.

- **Area-wide Conservation Planning**

Jobos Bay CTP sponsored this three day training as the first step to develop an Area-wide Conservation Plan for JBNERR watershed. The course followed the procedures and guidelines set forth in the National Planning Procedures Handbook for area wide conservation planning. It emphasized locally led conservation, working with people, and the planning process. It used JBNERR as case study to demonstrate techniques and dynamics of area wide conservation planning. Wetland Conservation. Puerto Rico CTP coordinates with the Ornithological Society of Puerto Rico a two day workshop with field experiences. CTP provided to participants a teachers workbook which includes classroom and field activities from Third to Eight grade students, and an identification chart of wetland birds from the Caribbean.

Kachemak Bay National Estuarine Research Reserve

2006 Education Program Report

Terry Thompson, Education Coordinator – Terry_Thompson@fishgame.state.ak.us

KBNERR is headquartered in the Alaska Islands and Ocean Visitor Center located in Homer, Alaska. The Reserve shares this facility with the Alaska Maritime National Wildlife Refuge. During the FY2006 (state fiscal year) over 75,000 visitors came through our doors.

- **Partnering Opportunities**

KBNERR is heavily involved with a number of partner organizations, all working to achieve our goal of educating people of all ages about our natural resources in Alaska and beyond. Currently we work closely with other educators within the Alaska Dept. of Fish and Game, Alaska State Parks, National Fish and Wildlife Service, National Park Service, local non-profits (Pratt Museum, Center for Alaska Coastal Studies), Kenai Peninsula School District, University of Alaska – Anchorage, and Alaska Native tribes.

- **K-12 Programming**

KBNERR provides a suite of 24 grade-specific K-12 programs, all aligned to State of Alaska science standards and three different school district curriculums (Kenai Peninsula School District, Anchorage School District, Mat-Su School District).

KBNERR education staff provided activities to approximately 4,000 students (4,300 contact hours) from throughout Alaska (Fairbanks to Kodiak).

- **Summer Programming**

KBNERR provides three summer programs for the local and visiting public who come to the Alaska Islands and Ocean Visitor Center. These programs are: Discovery Labs, Estuary Hikes, and Beach Exploration Hikes. During 2006 KBNERR education staff offered programming to approximately 4,300 individuals (2,200 contact hours).

- **Public Events**

Over the last year, KBNERR provided or participated in a number of public events throughout Southcentral Alaska. These events included National Estuaries Day, Earth Day, Kachemak Bay Shorebird Festival (Homer), Kenai River Festival (Kenai), and the Ocean's Festival (Anchorage). Over 1,100 individuals had direct contact with KBNERR staff during these events in 2006.

- **Education Products**

KBNERR has an incredibly talented education team, and a few who bring outstanding art and media skills to the Reserve. Over the last year the Reserve has been very successful in “selling” these skills when seeking outside projects. During 2006 our technical illustrator has been contracted to produce logo's, branding materials, and two tradeshow displays for the Department of Fish and Game's invasive species program and the Municipality of Anchorage and their *Salmon in the City* program. During this same time period, the KBNERR videographer has produced videos for KBNERR projects, the Municipality of Anchorage, and the Seldovia Village Tribe.

Kachemak Bay National Estuarine Research Reserve

2006 Coastal Training Program

Dr. Rick Foster, CTP Coordinator – Rick_Foster@fishgame.state.ak.us

- **GIS for Coastal Professional**

Based on needs assessment of regional natural resource scientists and managers, offered week-long training opportunity on GIS for Coastal Resource Professionals. Two Coastal Services Center courses, Introduction to ArcGIS and GIS for Coastal Resource Professionals (an intermediate course); each was attended by employees from 18 state fish and game (five offices); three Homer Soil and Water Conservation District; three City of Homer planning, one Public Works; Coastal Management Program, two Department of Natural Resources, Permitting; two US Fish and Wildlife, Alaska Maritime National Wildlife Refuge.

Outcome Summary: City of Homer incorporates GIS maps into their bi-weekly planning commission packets, permit review, and on their website; Public Works incorporated GIS into City Sewer and Water Master Plan.

- **Roads Science Workshop**

Based on needs assessment of regional land use planning decision makers, we offered as part of our annual *Coastal Dynamics Series*, a conference entitled *Roads: Linking Policy and Science*. It consisted of two-days of presentations, discussion, and work-sessions based on specific community concerns. Presentations and technical assistance from 10 scientists and engineers and attended by 75 elected and appointed officials, borough and city planning, public works, and road maintenance employees, state and federal, and Tribal government land managers.

Outcome Summary: One city added requirement for road standards immediately following workshop. Borough modified comprehensive plan to increase size of culverts when roads with new and repairs of roads with stream crossings. Borough review of new platted roads in relation to wetlands and steep slopes.

- **Developing Guidelines for No Adverse Impact Responses to Erosion**

The City of Homer, challenged with an increasing number of property owners building various kinds of structures trying to combat erosion along their eroding bluffs along Kachemak Bay. Providing technical assistance, CTP teamed City Planners with agencies responsible for permitting shoreline alteration projects. This collaboration provided the City with the guidance they needed to be able to identify “no adverse impact” guidelines they could provide property owners wanting to protect their shorelines. To accomplish this, CTP then organized a work session, field trip, and a public meeting which invited local engineers, surveyors, landscape architects, and property owners, to work with University of Alaska coastal engineers, an oceanographer, State floodplain manager, permitting agency representatives, and City planning, public works and management staff. The outcome of this CTP event was a framework the City can now use for shoreline and bank alteration project guidelines, designed to meet their No Adverse Impact (NAI) permitting criteria, and which are comprehensible for property owners, engineers and contractors.

Mission-Aransas National Estuarine Research Reserve

2006 Education Program Report

Rick Tinnin, Education Coordinator – Tinnin@utmsi.utexas.edu

- **Visiting Class program September-December 2006**

The visiting class program hosts 6th-12 grade students aboard a 57' research vessel for half day research cruises. We have 36 groups scheduled for a total of 1150 student participants.

- **Teacher Workshops**

MA-NERR co-hosted a Maritime History workshop with The Texas Marine Educators Association that featured a cruise into Copano Bay and a visit to the site of old El Copano, an important sea port dating back to the early 1800's. The group of 35 teachers also visited the Corpus Christi Museum to work with researchers that salvaged La Salle's ship in Matagorda Bay. They also toured the three Columbus ships at the museum.

The Texas Association of Biology teachers convened a mini-conference at UTMSI for a field based immersion into marine science, participating in a research vessel tour and a salt marsh ecology workshop.

A group of 25 UTeach pre-service teachers participated in an immersion in marine science. These pre-service teachers will then develop lesson plans based on their experience and will be teamed with 70 high school and middle school students in late October to teach their lessons in the field. The UTeach program is nationally acclaimed and severs a teacher training model for the nation.

- **Visitors Center**

The visitors center will host 15,000 winter visitors and tourists this fall. We offer free movies each day and self-guided tours of seven large marine aquaria as well as displays about the research and graduate education programs available through UTMSI.

A public seminar series will kick off this fall, showcasing the research activities of our faculty and senior research staff. Each seminar typically hosts 150+ participants and this program is very well received by local residents and out of town visitors.

- **Wetlands Education Center**

Construction of the WEC is well underway. The first stage will create a 3.5 acre salt marsh with sheltering dunes. There are two tidal inlets to provide water flow. This stage will be completed in January 2007. The second stage will involve construction of a perimeter boardwalk, three floating program platforms, an amphitheatre, shaded overlooks and educational signage. The boardwalks will be connected to a 1200 sq.ft. running seawater teaching lab for program support. The construction phase will be completed by October 2007.

- **UT-Mustang Island ELDERHOSTEL**

This program provides field-based outreach to participants over 55. The focus is costal ecology with an emphasis on resident and migratory birds. The 20 program weeks are staged out of Port Aransas, Rockport, Kingsville, and Brownsville and Mac Allen in the Rio Grande Valley, adjacent to Mexico. During the program year, an average of 500 participants explores coastal and inland habitats, sighting Whooping Cranes, Hawks, Ferruginous Pigmy Owls, Green Jays and Least Grebe to name a few. An average week tally includes over 160+ species of birds.

Mission-Aransas National Estuarine Research Reserve

2006 Coastal Training Program Report

Sally Morehead, Asst. Reserve Manager, Stewardship Coordinator – Sallym@utmsi.utexas.edu

In addition to the Cooperative Conservation Listening Session, the Mission-Aransas National Estuarine Research Reserve (MANERR) is planning three workshops to satisfy the workshop requirement for CTP development.

- **Cooperative Conservation Listening Session - September 5, 2006**

MANERR worked with the Department of Commerce to organize co-host a Cooperative Conservation Listening Session with Dr. David Sampson, Deputy Secretary of the Department of Commerce. Reserve Manager, Dr. Lee Fuiman, also participated as a panel member. This meeting was the latest in a series of discussions the Administration has hosted since the White House Conference on Cooperative Conservation in August, 2005. The listening session gave citizens an opportunity to exchange ideas on incentives, partnership programs, and regulations that could improve results and promote cooperative conservation and environmental partnerships. Citizens provided public comment for support of many Federal programs, as well as requests for reorganization and/or enforcement of other programs.

- **Social Dimension Regional Roundtable Workshop – Winter 2007**

A regional roundtable workshop will be conducted in collaboration with the NOAA Coastal Services Center (CSC) to present a human dimension profile of the MANERR to natural resource management professionals and applied social scientists from and/or working in South Texas. The workshop will also help develop a master plan of action for applied social science activities that will support ecosystem-based management decision-making for the Mission-Aransas NERR and surrounding watersheds along the South Texas coast.

- **Smart Growth Workshop – Spring 2007**

The MANERR will work with CSC to host a Coastal Community Planning and Development training course. This course will offer instruction in the general principles of smart coastal development and ways to implement these principles within a community.

- **Bacteria Dynamics Workshop – Summer 2007**

There is currently a Total Maximum Daily Load Program for coliform bacteria in Copano Bay. MANERR will work with the Texas Commission of Environmental Quality host a workshop that will educate a technical group of resource managers on the information gaps of coliform dynamics and possible health risks.

Narragansett Bay National Estuarine Research Reserve

2006 Education Program Report

Kristin Van Wagner, Education Coordinator – Kristin@nbnerr.org

- **New Education Coordinator**

Kristin Van Wagner joined the Narragansett Bay NERR team in May 2006 as the Education Coordinator. Kristin has spent the last six years working as Education Specialist for a local government land acquisition program in Florida and holds a Master's degree in Science Education.

- **Education Programs**

Over the course of the summer NBNERR hosted six “Summer Science Seminars” lead by Reserve staff. Topics included eelgrass restoration, human-influenced changes to the local landscape, and bird watching. A five-day summer camp called “Marine Discovery Day Camp” was well attended and focused on estuarine ecology and interactive activities for ages seven to twelve.

- **Teacher Training**

Along with Save The Bay, the Reserve hosted 19 teachers for a day on Prudence Island to study saltmarshes. The EC and Research Coordinator, Kenny Raposa, led field and classroom interactive sessions for the teachers as well as a presentation about the Reserve System and EstuaryLive.

- **Public Event Programs**

Starting in May when the new EC joined NBNERR, the Reserve participated in URI's East Farm Spring Fest, the Prudence Improvement Association's Family Day, and participated in the Rhode Island “BioBlitz” with the Rhode Island Natural History Survey. NBNERR also organized and hosted the annual Prudence Island Fishing Tournament with about 100 people participating.

We also hosted a successful open house at the Reserve with approximately 70 people in attendance. Large-format watercolor paintings and black and white photographs of Prudence Island were exhibited in the Education Center as a highlight of the summer open house.

- **Exhibit Development**

Before summer visitors began arriving to the island, staff repainted and redesigned exhibits in the Aquaria Ed Shed located on the south end of the Reserve. Aquaria tanks were relocated and expanded and a new touch tank for younger audiences was added.

- **Reserve News**

The Reserve News summer newsletter included updates from the Manager, a Summer 2006 calendar of events, advertised a “Friday Funday” series of activities for families, and promoted the Reserve Open House for the community. It also contained articles interpreting the Reserve's annual spring songbird survey, on-going saltmarsh research being conducted by the Reserve's Graduate Research Fellow, and updates to the Narragansett Bay Watershed CTP program.

- **Management Planning**

As the Reserve works toward a draft of its 2007-2012 Management Plan, we held committee meetings for the Education Sector with environmental education providers from throughout Rhode Island. A draft version of the Education goals and objectives is ready for final review by this committee. The education sector also worked with a web design firm to create a website for the plan. It contains agendas for upcoming meetings, minutes from past meetings, and draft versions of the management plan for comment.

Programs and Activities

- **2006 Land and Water Summit, Invasive Species Session**

The NBWCTP cosponsored and exhibited at the 2006 Land and Water Summit in March, a day-long conference featuring sessions on various topics of interest to land trusts, watershed councils, municipal staff and volunteers and others. The NBWCTP organized a session on invasive plant management, which featured presenters from the National Wildlife Refuge System and the private consulting sector.

- **Riparian Buffer Restoration Training**

The NBWCTP partnered with RIDEM and the Natural Resources Conservation Service (NRCS) to provide a training to watershed councils, land trusts, private landowners and others on the Riparian Restoration Fund, a portion of the Narragansett Bay and Watershed Restoration Bond that Rhode Island residents voted on in 2004. The April training included an overview of the fund and the application procedure as well as the steps involved in a restoration project and details on resources needed to move forward.

- **Power Of Place Conference**

The NBWCTP was on the planning committee and a major sponsor of a smart growth conference in May led by Grow Smart Rhode Island (GSRI) that attracted over 500 community stakeholders, including officials from 32 of Rhode Island's 39 cities and towns. Conference attendees learned about how the State's newly adopted land-use plan, Land-Use 2025, can help guide the responsible growth and development of communities. Participants heard from local and national experts on a variety of development related topics from the environmental impacts of sprawl to water availability.

- **Conservation Development**

The NBWCTP, in partnership with RIDEM and GSRI, conducted a pilot training on conservation development with participants from state agencies, local planning boards, private consultants, and housing groups. The trainings will guide towns who have adopted conservation development ordinances in how to best utilize conservation development as a design process and how to critically review submitted development proposals so that valuable open space is retained, sensitive ecological features are protected, and stormwater impacts are mitigated to improve and protect the integrity of Narragansett Bay.

- **Prudence Island Groundwater Task Force Meeting**

The NBWCTP, in collaboration with the Natural Resources/GIS specialist at NBNERR and the Prudence Island Groundwater Task Force, organized and facilitated a meeting on groundwater issues facing Prudence Island, the location of NBNERR. A significant group of experts in the field, representing state and federal agencies, non-profit organizations, and universities, gathered to address critical questions and concerns of the town-initiated Task Force.

- **Municipal Trainings Calendar Development**

Working collaboratively with GSRI, the NBWCTP has recently developed an online calendar for use by training organizations in the Narragansett Bay watershed. The goals of the calendar are to

strengthen the capacity of municipal decision-makers to make well-informed decisions on land and water resource issues by informing them in a comprehensive way of the training and skill building opportunities available to them, as well as to contribute to the coordination effort among various training organizations by reducing scheduling conflicts, avoiding duplication of training efforts, and generally enhancing collaboration.

- Member of the GSRI Advisory Committee and the Phase II Stormwater Advisory Committee

Outcome Summary

- **Riparian Buffer Restoration Training**

With the NBWCTP's training and help in promoting the Riparian Restoration Fund and encouraging groups and individuals to participate, RIDEM received 14 applications for the first grant round, eight of which will be funded for a total of \$153,000.

- **Power Of Place Conference**

An entire track of workshops covered specific tools for implementing smart growth, from the State's Brownfield Redevelopment Program to conservation development.

- **Conservation Development**

The participants provided valuable feedback on the initial presentation as well as the hands-on group exercise; this input will be incorporated into upcoming conservation development workshops to be offered to several Rhode Island town planning boards and eventually developers and others.

- **Prudence Island Groundwater Task Force Meeting**

The meeting participants provided the group valuable and applicable recommendations on research as well as educational needs and implementation strategies that the group could move forward with in order to begin to solve the critical groundwater quantity and quality issues of Prudence Island.

North Carolina National Estuarine Research Reserve

2006 Education Program Report

Amy Sauls, Acting Education Coordinator – Amy.Sauls@ncmail.net

- **Coastal Federation Annual Oyster Conference Late Winter 06**

The Reserve helped partner with local grassroots organization to help conduct their annual oyster conference, which highlights the status of oysters and associated programs in the state. Researchers, local community projects, managers were all integral parts of the program.

- **Coastal Awakenings Workshop April 06**

This workshop was a team effort with Reserve Education staff and NC Museum of Natural Science education staff for teachers and educators. Participants spent 2 nights on the coast and experienced ecology, biology and geology at local areas with team leaders. The focus of the workshop was spring, with observations of biorhythms changing with the change of seasons. Fun was had by all!

- **Student Field Trips On-going**

Spring always sees an increase in student ecology field trips to Reserve sites. Education staff conducted trips primarily to the Rachel Carson site for students in April, May and June. Fall and spring 07 trips are now being scheduled.

- **EstuaryLive Spring '06**

EstuaryLive, a live, interactive internet series of field trips and explorations, was held this spring at the Rachel Carson site of the NCNERR. Three days included over 10 sessions including barrier island geology, basic estuaries, blue crabs, hurricanes, invasive species, and herpetology. Over 2000 students logged in to participate.

- **SE COSEE Ocean Sciences Education Leadership Institute July '06**

The NCNERR teamed up with the COSEE education staff and NC Seagrant to conduct their annual workshop in North Carolina. Teachers from NC, SC, and GA gathered at Pine Knoll Shores, NC for a 5 day workshop that involved researchers and field experiences. This was a fantastic learning experience for all, as the participating profession experts provided teachers with some up to date research information.

- **Teacher Professional Development '06**

Teacher workshops geared to provide teachers and educators with resources on coastal habitats, with emphasis on estuaries are ongoing in 2006. In May there were 2 workshops on the Outer Banks, and in September there will be a workshop at Bald Head Island, NC. Teachers earn renewal credits for participation, which typically involves a reserve site visit.

Community Education Report

- **Summer Public Field Trips to Reserve Sites Summer '06**

Over 200 summer vacationers participated in Interpreter field trips this summer where they got to experience a Reserve site either at the Rachel Carson or Currituck sites. Trips were held on Tuesday and Thursdays.

North Carolina National Estuarine Research Reserve

2006 Coastal Training Program Report

Whitney Jenkins, Coastal Training Program Coordinator – Whitney.Jenkins@ncmail.net

- **Managing Visitor Use in Coastal and Marine Protected Areas – October 2005**

This workshop, taught by NOAA's Coastal Services Center, provided an overview of the human dimensions of protected area management, offered examples of visitor use and associated impacts to natural resources and visitor experiences, and demonstrated applications to help managers address the people side of resource management.

- **Promoting Sustainable Communities Using Smart Growth Principles – November/December 2005**

The purpose of these workshops was to help coastal communities integrate smart growth principles into their land use practices to mitigate cumulative and secondary impacts on coastal resources. These workshops discussed how smart growth principles are designed to slow sprawl and employ mixed land uses; create walkable neighborhoods; and preserve open space, farmland, natural resources and critical environmental areas. An overview of Coastal Area Management Act land use plans and a demonstration of the land suitability tool were provided.

- **Stormwater Management Education for Realtors – January/February 2006**

These workshops introduced realtors to the importance of stormwater management, the design of structural best management practices, and the principles of low impact development and better site design. Realtors earned four continuing education credits and the workshops were offered in partnership with the North Carolina State Cooperative Extension.

- **Green Building Workshop and Technology Fair – April 2006**

This event was developed in coordination with the other Southeast Region Coastal Training Programs. There were two similar events in South Carolina and Georgia, and the three events were advertised together. The purpose of this two-day event was to introduce green building concepts and technologies to coastal communities. Regional case studies of green buildings were highlighted, as well as the economics of green building, green building practices in new home construction and LEED certified green building products.

- **Needs Assessment of Carteret County Town Planning Board Members – Winter/Spring 2006**

A needs assessment of the eleven town planning boards in Carteret County, North Carolina was conducted. Planning board members were targeted because they are volunteers, some of whom have little prior training in the planning profession and there tends to be frequent turnover on these boards. Based on the high response rate, 73%, these planning board members are interesting in training opportunities. Since there are a variety of topics that these boards are interested in knowing more about, the CTP will attempt to offer several workshops, perhaps on a quarterly basis, each with a different focus.

- **Septic System DVD for Realtors**

This DVD, based on a needs assessment (through realtor septic system workshop evaluations), will help realtors explain issues associated with septic systems to their clients. The DVD will include five segments: how a site is evaluated for a septic system for new construction; different types of septic systems; buying a home with an existing system; septic system maintenance and general awareness;

and downloadable forms and FAQs. The DVD content was developed with the help of an advisory committee and filming is scheduled to begin in September 2006.

- **Funding Environmental Improvements in Your Community: Funding Agencies and Grantwriting Basics – October 2006**

This two-day workshop introduces participants to various funding agencies that provide assistance to local communities to make environmental improvements that control stormwater runoff, improve local water quality and restore watersheds. Participants also learn what these agencies look for in a grant application and how to find other sources of funding. Day two is devoted to refining grantwriting skills. This is the third time this workshop has been offered in the past four years.

North Inlet-Winyah Bay National Estuarine Research Reserve

2006 Education Program Report

Beth Thomas, Education Coordinator – Beth@belle.baruch.sc.edu

- **NIWB NERR Awarded Construction Grant for Education Center Expansion**

NOAA awarded the NIWB NERR a construction grant of almost \$2.9 million to expand the education facilities at the front entrance of Hobcaw Barony (host to the USC Baruch Field Laboratory/Reserve headquarters) where an existing visitor center currently serves the Belle W. Baruch Foundation and Hobcaw Barony Visitor Center staff. We have been working closely with the Baruch Foundation and the NERRS Centralized Data Management Office (CDMO) this past year to design a joint-use facility that will serve the education and office space needs for our various programs.

- **New Education Specialist Hired for Community Education and Coastal Training Programs**

Stowe Hartridge-Beam joined the Reserve as Education Specialist in November 2005 and has worked closely with all sectors, but particularly as a link between the Community Education and Coastal Training Programs, splitting his duties between these two coordinators. Stowe developed a new kayaking program co-sponsored with a local outdoor outfitter, created a comprehensive watershed basics program that can be used with both general community audiences and targeted CTP audiences, revived a research-to-public lecture series that highlights current research on Hobcaw Barony for general audiences, and has also revamped the Reserve's local website.

- **Expanded 'Keep Georgetown Beautiful' Partnership**

Reserve community education staff joined the Schools Committee of Georgetown's local chapter of Keep America Beautiful (KGB) and worked with the KGB Director to develop and assist with school programming for local elementary and middle schools on recycling, litter prevention, water quality, and various Earth Day and YMCA After School programs. The NI-WB NERR Education Coordinator was appointed to the Board of Directors in June 2006 for a two-year term.

- **Coastal Waccamaw Stormwater Education Consortium (CWSEC) Education Providers**

Reserve Community Education and CTP staff are core education providers for the Coastal Waccamaw Stormwater Education Consortium, which currently serves the northeastern coastal region of the state. The NIWB CTP, Coastal Carolina University's Waccamaw Watershed Academy, Clemson University's Carolina Clear Program, the Waccamaw Riverkeeper Program, and representatives from environmental non-profits and other citizen groups and state agencies began coordinating their stormwater and watershed education efforts. CWSEC providers facilitate collaboration among local service providers to best meet the educational needs of all audiences.

- **Carolinas Beach Vitex Task Force Partnership**

NI-WB NERR remains active in the Carolina Beach Vitex Task Force and has hosted a variety of public education seminars, workshops for Task Force volunteers, and conferences for Task Force members to share information on the research and progress of the organization. Due to the efforts of the Task Force, legislature has been enacted in many coastal areas that prohibits the planting of this invasive species, and the group recently received a grant award from USFWS for vitex removal and restoration with native species for fifty homeowners in coastal areas of Horry, Georgetown, and Charleston Counties.

- **SC Chamber of Commerce ‘High Performance Partnership’**

This partnership initiated by State and Local Chambers of Commerce pairs local schools with community business partners as mentors to help raise student academic achievement. The NI-WB NERR, University of South Carolina’s Baruch Institute for Marine & Coastal Science, Clemson University’s Baruch Institute of Coastal Ecology & Forest Science, and the Baruch Foundation are sharing roles in the business partnership and are working with Pleasant Hill Elementary School in Georgetown County. A teacher open house, field trips and school outreach programs, and a special program on estuaries aligned with state curriculum needs (presented to all 5th grade classes) were held during the 2005-2006 school year.

- **Community Education Programs**

The Reserve continues to offer quality education programming for a variety of audiences of all ages. Programs emphasize estuarine and watershed ecology, stewardship, research and monitoring, and ocean literacy fundamental principals and concepts. Several also integrate current and historical research and monitoring programs, and incorporate data interpretation and long-term trends in the presentations.

- **High School Water Quality Monitoring & the NERRS System Wide Monitoring Program**

The water quality background information (including curriculum), test kits, and classroom presentations from the former “Estuary-Net” project were so successful in our local high schools that the NI-WB NERR has continued to offer these programs to local high schools in Georgetown, Horry, and Charleston Counties. Teachers have a chance to utilize a customized program based on their needs and requests. These can be conducted in the classroom and/or at the NERR, or at the location of their choice. The classroom presentations include information about the NERRS, the SWMP, and the CDMO.

- **Middle & High School Field Trips**

The Reserve offers customized field trips for local middle and high school classes-especially classes in chemistry, biology, marine science, and environmental studies. These are offered throughout the school year and are limited to the classes mentioned; class size is also limited to 30 per visit. These trips are free of charge. The EC also coordinates with USC staff to handle college groups for similar field trip resources.

Outcome Summary

The majority of the community outreach programs listed here are providing many community enhancement opportunities, such as the Keep Georgetown Beautiful partnership which has resulted in the establishment of a monofilament recycling project in the City and expanded school outreach on recycling, litter prevention, and watershed education. Partnerships with the Coastal Waccamaw Stormwater Education Consortium and the Carolinas Beach Vitex Task Force have allowed enhanced services and education and stewardship opportunities focusing on non-point source pollution and invasive species issues. Community education and school outreach programs, as well as the Chamber of Commerce High Performance Partnership, strive to integrate estuarine ecology, research and monitoring and stewardship of coastal resources in all aspects of programming. And all of these education activities strive to increase knowledge and awareness of the NI-WB NERR and the entire NERRS program.

North Inlet-Winyah Bay National Estuarine Research Reserve

2006 Coastal Training Program Report

Jeff Pollack, Coastal Training Program Coordinator – Jeffrey@belle.baruch.sc.edu

- **Pervious Concrete: Installation, Efficacy, and Economics**

Pervious Concrete: Installation, Efficacy, and Economics, held on August 17, 2005, was the latest installment in our training series showcasing innovative, water-quality based stormwater Best Management Practices. This event attracted 85 participants, including engineers, developers, contractors, planning and public works staff, and elected and appointed officials, and laid the groundwork for several local demonstration installations of pervious concrete.

The NI-WB CTP coordinated the use of pervious concrete at the new Georgetown Chamber of Commerce building as well as for a very visible stretch of a coastal bike path that is being constructed in this county. In the case of the Chamber of Commerce project, the CTP turned the installation of the pervious concrete into a field demonstration (August, 2006) and has facilitated the use of the project as a research site for an academic researcher who was a presenter at the August, 2005 training mentioned above.

- **Water Quality Research Outreach**

The CTP continues to contribute to the outreach effort associated with the water quality research that is being done on the Noisette development in North Charleston, SC. The Noisette Project is an innovative redevelopment project that features mixed use, human-scaled communities and a progressive approach to stormwater management and natural resource conservation and restoration. After learning about the project in the spring of 2005, the NI-WB CTP brought together a group of water quality scientists to initiate a monitoring effort in order to capitalize on the opportunity to generate quality local data about some of our most common training themes. This monitoring effort is now fully funded and the subject of a doctoral project; several partners met this spring to prioritize outreach initiatives.

The CTP recruited the design team behind the Noisette Project to present the featured case study at a workshop style training event entitled: *Coastal Development Alternatives: Innovative Case Studies from the Low Country* in December of 2005, which attracted 79 participants from a range of private and public sectors.

- **Coastal Waccamaw Stormwater Education Consortium**

CTP continues to serve as a core education provider in the Coastal Waccamaw Stormwater Education Consortium. The CWSEC is a collaborative, regional approach to stormwater and watershed education that optimizes the efforts of participating education providers while helping local communities satisfy federal requirements for public stormwater education and outreach. In addition to hosting and administering the Consortium's website and contributing to a variety of planning functions, the NI-WB CTP has helped to plan and host four customized watershed and stormwater education training sessions for planners, Stormwater Advisory Committee members, city administrators, public works staff, and invested citizens in local MS4 communities. In each case, these sessions have focused on specific local needs, challenges, and conditions and were grounded in local examples, laying the groundwork for future technical assistance activities, such as ordinance review or information transfer. These sessions foster a water quality-based approach to stormwater management and a watershed-based approach to planning decisions.

The first event hosted by the CTP in 2006, held on January 25th and entitled High Performance Building: Balancing Environmental and Economic Sustainability, was a collaborative effort between the NI-WB and ACE Basin CTPs and the Campus and Community Sustainability Initiative at Coastal Carolina University and was part of a regional CTP initiative to provide region-wide coverage of a single topic. This event attracted **107 participants** and synthesized science-based strategies for natural resource protection with economic and market information into practical strategies for more sustainable development. A follow up session that will focus on high performance residential construction is scheduled for October 12, 2006.

The NI-WB CTP continues to provide technical assistance to the developing Georgetown County Stormwater Program by co-chairing the county Stormwater Advisory Committee, spearheading a group of County Council members, Planning Commission members, and county staff tasked with re-writing the draft stormwater ordinance, and serving as a de facto source for stormwater management information for the media and other groups in Georgetown County.

Low Impact Development in Practice: Case Studies in Quality Growth, hosted on June 7th, 2006, integrated broad concepts in watershed-sensitive planning with site-specific building strategies for managing stormwater runoff. This event featured multiple case studies, including a detailed look at Haymount—an inspiring new community under construction on the Rappahannock River in Virginia. This training also forged into new territory (for this immediate region) by highlighting rainwater capture as a strategy for simultaneously managing stormwater runoff, conserving water resources, and optimizing building performance. This event attracted **73 participants**, including design and other private-sector professionals, stormwater managers, planners, elected and appointed officials, and community interests.

- **Needs Assessment of Coastal Decision Makers**

Beginning in March of this year, the NI-WB and ACE Basin CTPs initiated a formal 3-year update of their needs assessment of coastal decision makers. We surveyed round 1,500 municipal and county elected, appointed, and staff officials and to about 225 professional decision makers (developers, engineers, architects) across all 6 of the coastal counties in South Carolina.

Old Woman Creek National Estuarine Research Reserve

2006 Education Program Report

Phoebe Van Zoest, Education Specialist – Phoebe.Vanzoest@dnr.state.oh.us

Public Programming

- **Estuary Explorations**

Guided Trail Walks: Offered each Saturday from July thru August, visitors were given a chance to take a themed walk lead by Reserve staff. Topics included: butterflies, wetland ecology, and aquatic food web. Guided Canoe Tours: Offered once a month from June to September, visitors were given a chance to take a guided canoe from the mouth of the estuary inland about 1 mile. The Reserve provided canoes, paddles and life jackets.

- **Estuary Perspectives**

New this year was a sketch class, led by a local artist who has completed several pencil drawings in the Reserve. This program was very popular and culminated in an art show that began on National Estuaries Day (September 30) through October 14. The artist that led the sketch class has completed three seasonal art panels for display in the Reserve visitor center outdoor kiosk. The original artwork was framed and loaned to the Cleveland Metroparks for a three month art show about nature art and photography featuring work done at the Old Woman Creek Reserve. The show includes information about the Reserve program and the ecology of the estuary.

- **Distance Learning Programming**

Several programs were offered through distance learning formats. Through the virtual classroom, the Reserve has reached many students in other parts of Ohio who would not have been able to participate in our programming otherwise.

- **January – June 2006 K-12 and Community Programs**

Total Programs = 54

Total Participants = 1787

* Please note: These numbers include only formal programming, and do not reflect Reserve visitors who did not participate in a formal program.

Programs of Note

Two Firelands Montessori Academy classes visited the Reserve three times each. One class participated in a beach clean-up. In the coming school year, the 1st- 3rd grade classes will work with the Education Specialist to explore the estuary further, by collecting water samples and seining.

Estuary Live: The general public and students from the area will have an opportunity to watch Estuary Live and learn more about our nation's estuaries through an arrangement with Bowling Green-Firelands Branch. The Reserve reserved a computer lab at the University where visitors were allowed to view the program.

Old Woman Creek National Estuarine Research Reserve

2006 Coastal Training Program Report

Heather Elmer, Coastal Training Program Coordinator – Heather.Elmer@dnr.state.oh.us

- **Firelands Coastal Tributary Watershed Coordinator Grant**

Facilitated planning sessions and provided technical assistance to local agencies and organizations with the goal of securing funding for community based watershed planning. The Friends of Old Woman Creek and more than a dozen collaborating organizations were subsequently awarded a four year, \$140K grant from the Ohio Department of Natural Resources Division of Soil and Water Conservation. The funding will fund a watershed coordinator who will work with community residents and businesses in a locally driven process to improve water quality in the Old Woman Creek watershed.

- **Ohio Sea Grant State Legislature/Congressional Day**

Planning and program evaluation for day long educational event focused on the ecological status and economic value of Lake Erie communicated through Sea Grant sponsored research and education. Attended by over 100 legislators, aides, and advisory committee members, the event included Sea Grant research briefs, interactive demonstrations, and a science cruise aboard a Sea Grant research vessel. The Ohio CTP provided a demonstration illustrating how best land use practices such as riparian buffers, conservation tillage, and low impact development protect Lake Erie from nonpoint source pollution.

- **Modeling Nitrogen in the Watershed**

The first in a series of two workshops provided by a CICEET funded research team from the University of New Hampshire and co-sponsored by the Ohio Sea Grant College Program, Ohio Coastal Management Program, and the Erie Soil and Water Conservation District. The objectives of this workshop were to introduce a tool for assessing the effectiveness of management options for reducing nutrient loading to Old Woman Creek, gather information about local agricultural management issues, and discuss potential applications for the tool. The project team is optimizing the tool to local conditions based on participant feedback at this workshop. Two local farmers have offered their fields as sites to ground-truth the model and for development of case studies. Detailed technical training in use of the adapted tool will be provided in late 2006.

- **The Future of Ohio's Lake Erie Basin: Balancing Land Use and Water Quality**

The Ohio CTP contributed funding, marketing support, and administered the program evaluation for this day long conference attended by over 150 local officials, planners, water quality groups, developers, and agencies throughout the Lake Erie watershed. The keynote address provided an historical overview of land use and water quality in the Lake Erie watershed with a focus on adverse environmental impacts of low density development patterns. The conference also provided an overview of the newly launched Ohio Balanced Growth Program. This program will support a locally driven planning framework for coordinated, regional decision-making about how growth and conservation should be promoted by local and state policies and investments in the context of watersheds. Afternoon breakout sessions focused on a wide array of topics including citizen participation in watershed planning, storm water management, brownfield redevelopment, and open space conservation.

Other Program Activities

- Collaborating with Lake Erie Commission to evaluate training needs of local officials in the basin. Needs assessment results will inform development of the Ohio Balanced Growth Training Program.
- Completed survey design and compiled comprehensive database of local elected and administrative officials in 34 counties. Survey will be administered in fall 2006.
- Developed program brochure for marketing purposes
- Initiated planning process for stormwater management training based on identified need among local officials. Planning Committee: Ohio NEMO, Ohio State University Watershed Extension, Ohio Coastal Nonpoint Program, Old Woman Creek NERR, Ohio Sea Grant College Program, and Erie Soil and Water Conservation District

Padilla Bay National Estuarine Research Reserve

2006 Education Program Report

Glen Alexander, Education Coordinator – Alex@padillabay.gov

- **School Programs**

Programs are offered at our Center to groups from preschool through grade 12 varying in length from 1.5 to 5 hours. They include the Estuary Soup skit, our interpretive film, collecting organisms at the beach, observing them under microscopes and a tour of our exhibits. We see about 8,000 people, 15% are adult volunteers (parents and teachers)

The International Brant Monitoring Project, is a tri-national partnership between schools and resource agencies along the Pacific Flyway. Students from Alaska; British Columbia; Washington; Oregon; California; and Baja California, Mexico learn about Brant geese through classroom activities, field trips with local experts, and by using the Internet and a special web site to communicate about their findings. Padilla Bay Reserve provided international coordination and provided a program to two local science classes.

www.padillabay.gov/brant

Storming The Sound is a one-day annual conference for environmental educators in the north Puget Sound region attended by 130 teachers, environmental organizations with education programs, and college students.

This summer we held a two-week teacher workshop. Five teachers in grades 3 to 5 learned estuary science from Padilla Bay staff members. They created lessons to teach estuary science to students with a focus on teaching science skills specified in the new state science education standards.

- **Other Groups**

We also do programs for home schools, scouts, foreign students (ESL), summer youth groups, college students, teachers, seniors, and adult citizen volunteer environmental monitors. Each program was individually designed to meet the educational needs of the group. These reached an audience of about 1,200.

- **Family programs**

These included our youth programs and Puget Sound Kids Day, our National Estuaries Day event. These programs reached a total of 1,200 participants.

- **Public Programs**

These workshops are lead by local experts contracted to teach subjects associated with estuary ecosystems such as estuary biology and ecology. Total attendance was about 400.

These programs are described on our web page and in our Newsletter:

www.padillabay.gov/calendarofevents.asp www.padillabay.gov/newsletter.asp

Outcome Summary

As a result of these and other programs we no longer have any pollution, development, cars or wars in our watershed. Everyone knows what an estuary is and holds the highest respect for NOAA.

Padilla Bay National Estuarine Research Reserve

2006 Coastal Training Program Report

Cathy Angell, Coastal Training Program Coordinator – Cangell@padillabay.gov

Trainings

The Coastal Training program offered eleven 1-day workshops and nine 2-day workshops, for a total of **20 workshops and 29 days of training**. Training classes included:

- Using the Revised WA State Wetland Rating System
- Reviewing Wetland Ratings in Western WA
- How to Administer Development Permits in WA's Shorelines
- Managing Shoreline Drainage for Slope Stability, Habitat and Water Quality
- Preparing Shoreline Characterizations for Shoreline Management Plan Updates
- Protecting Aquatic Ecosystems: A Guide for Puget Sound Planners to Understand Watershed Processes
- Shoreline Management and Stabilization Using Vegetation
- Puget Sound Coastal Processes and Shoreline Stabilization Measures
- Developing Critical Area Ordinances for Wetlands Using the Best Available Science
- Protecting and Managing Wetlands Using the Best Available Science

The trainings are geared toward **local planners, state permitting staff, and private consultants**. Several of the trainings were taught by specialists from the Department of Ecology, our partner agency. Other trainings were taught by consultants or other state agency staff. There were a total of **554 participants**.

Outcomes Summary

Eighty-one members of our target audience recently answered an informal survey about how the Coastal Training Program was **making a difference in how they do their jobs**. The overwhelming response is that it is making a huge difference. Why? Because participants feel more informed and confident in making decisions; they have the proper tools and guidance in implementing regulations and updating their shoreline master programs; they understand how to follow proper protocol; and they better understand the perspectives of the regulatory agencies, which has resulted in increased cooperation and goodwill.

Permit applications and other forms are more accurate, which means faster turn-around and fewer headaches for state permit reviewers. Planners are becoming more consistent with their peers and have expressed appreciation that the **Coastal Training Program is helping professionals “get on the same page.”**

Rookery Bay National Estuarine Research Reserve

2006 Education Program Report

Randy McCormick, Education Coordinator – Randy.Mccormick@dep.state.fl.us

Formal Education Programs

- **Fourth grade Estuary Explorers Program**

These field trip programs take place throughout the year. A collaborative effort with our county school system, Estuary Explorers requires teachers to participate in a training session before their class will be allowed to participate. Pre- and post-trip activities in the classroom are an integral part of this program.

- **High School Marine and Environmental Science Field Trips**

These boat-based field trip programs include activities such as water quality analysis, trawling, oyster reef explorations, mangrove studies and barrier island ecology.

- **University and College Field Trip Programs**

These boat-based field study programs are delivered on a variety of topics including marine biology, environmental studies, ichthyology and oceanography. A significant increase in demand for these programs has appeared due to the rapid growth Florida Gulf Coast University. This is the newest component of the Florida state university system.

Non-formal Education Programs

- **Boat Based Field Trips**

These trips are provided to a wide variety of community groups, lifelong learning programs, scouts, volunteers, etc. The educational content of these trips typically includes an introduction to the flora and fauna of Rookery Bay Reserve and the ecological processes that influence the health of an estuary.

- **Florida Master Naturalist Program**

We conduct these 6 day courses as a part of this public education program administered through the University of Florida.

- **Community Education**

A selection of public programs (typically PowerPoint followed by discussion) are provided to various community groups. Attendance at presentations has ranged from 10 to over 100. The topic is usually an overview of estuaries in general and Rookery Bay Reserve in particular. We explain what estuaries are, why they are important, and what folks can do to help protect them.

- **Summer Camp Programs**

Summer activities were provided for the general public as well as several local day camps. Youngsters (and sometimes their parents) spend a day at the Environmental Learning Center learning about coastal flora and fauna, and doing hands-on discovery activities, crafts and microscope explorations.

- **Natural Connections Guest Speaker Series**

This presentation series is held in the evenings, once a month from November through April, and is open to the public. Topics cover a wide range of topics related to natural history.

- **Planet Earth Film Series**

This is a series of films on the natural world that are offered for free on Saturday afternoons. When the weather is hot, this offers families an inexpensive air conditioned place to go and learn about a variety of natural history topics.

Activities and Events

- **Art Gallery Exhibitions**

Rookery Bay, in partnership with our local United Arts Council, presents four art exhibitions per year. We provide the gallery space and opening receptions, while the UAC solicits entries, juries the show, and installs the artwork. Rookery Bay staff participates in theme selection. Opening receptions usually involve 50 to 100 visitors. In addition, we do at least one art exhibit per year in association with the art teachers at Collier County schools.

- **Southwest Florida Birding Festival**

Created and hosted by Rookery Bay, this event now counts 13 different agencies and organizations as partners. Guided field trips, speaker presentations, films, and a host of family fun activities support the festival's mission: to stimulate people to appreciate, and motivate them to preserve, the rich bird life and bird habitats of southwest Florida.

- **Southwest Florida History and Archeology Festival**

This event highlights the cultural heritage of our region and acknowledges the human influence on this landscape over the last 2000 years. As stewards of this reserve, we are also stewards of its history, and this festival offered opportunities for the public to participate in a variety of hands-on living history experiences as well as listen to some of the best local experts in the fields of archeology and cultural anthropology.

- **Dive Into Ocean Careers**

Over a three day period of time this event offered an opportunity for middle and high school students, as well as the general public, to learn about the many career opportunities that are dependent on ocean and coastal resources. A 20,000 gallon pool was set up by the Dive Equipment Manufacturers Association and students were given the opportunity to try scuba equipment in a safe and structured environment. Other agency participants included Florida Fish and Wildlife Commission, environmental engineering firms, ecotour operators, fishing guides, etc.

- **International Coastal Cleanup**

Rookery Bay is a local sponsor of this international event. Volunteers come together to clean up trash and marine debris in various parts of the Reserve and in adjacent coastal waters.

- **National Estuaries Day**

A variety of hands-on activities, guided walks, kid's activities, and interpretive programs are offered to the public. Admission to the Environmental Learning Center is free on this day.

Visitor Services and Volunteer Program

In addition to the specific programs offered to various user groups discussed above, the Rookery Bay education team makes substantial efforts to provide visitors to the Environmental Learning Center with a positive educational experience. This involves the development, installation and maintenance of interpretive exhibits, development of interpretive programs within the exhibit hall, operation of a nature store, stocking aquaria and feeding specimens, maintaining life support systems, interpretation of research activities, etc. We hosted a variety of workshops and meetings for Reserve staff as well as for partner agencies. All these meetings require managing room reservations and facility rentals. We have also begun offering educational birthday parties to the public by special arrangement. In order to accomplish our mission we must rely on the help of volunteers, so successful recruitment, training and supervision of volunteers is crucial. The effective and efficient day to day management of a public visitor center has been a high priority for our entire education staff.

Publicity, Marketing, Communications and Research Translation

The face that Rookery Bay presents to the public is primarily guided by the efforts of the Education Team. This involves the production of an endless stream of brochures, program guides, activity flyers, graphics, promotional materials, PowerPoint programs, banners, posters, newspaper articles, media releases, etc. We are also responsible when print or broadcast media representatives contact us for a story and require interviews or photo ops. The public relations component of our work is critical to our success. If the public does not understand what we are doing, or why it is important, then they are unlikely to support our efforts. We also realize that we cannot afford to be passive. Publicity and marketing can be effective educational tools that can dramatically impact our program, so we spend a considerable amount of time and money placing ourselves in the public eye.

Rookery Bay National Estuarine Research Reserve

2006 Coastal Training Program Report

Tabitha Whalen Stadler, Coastal Training Program Coordinator – Tabitha.Stadler@dep.state.fl.us

Joy Hazell, Coastal Training Specialist – Joy.Hazell@dep.state.fl.us

- **Coastal Considerations for Professionals**

Rookery Bay Coastal Training offers Coastal Considerations for Professionals for organizations, businesses or groups interested in developing knowledge to support decision-making on the job related to the following goals:

- Increase understanding of the environmental, economic, human health, and social value of Rookery Bay and coastal resources,
- Increase understanding of the value and purpose of watersheds and protected lands,
- Identify and discuss balancing the needs of humans and the needs of natural systems with a focus on personal and professional decision-making.

This program is field-based and was provided to Marco Island Association of Realtors Leadership Group on June 9th and Marco Leadership on November 9th and Collier Leadership on January 15th.

- **Ecotour Operator Series**

June, July, August and September 2006 marked the fourth annual Ecotour Operator Series. Workshops were held on the third Thursday of each month in Collier County and the second Tuesday of each month in Lee County. New partners to expand the program to a second county included the Society for Ethical Ecotourism of Southwest Florida, Lee County Parks and Recreation and the Southwest Florida Marine Industries Association. The Marine Industries Association of Collier County Foundation continued to financially support the program at Rookery Bay in Collier County. Topics included Ecotourism and Ethnobotany, Mangroves.. Florida's Walking Trees, The One and Only Everglades and For the Birds. Approximately 200 people attended and 30 received a certificate of participation for attending three of the four programs. Numbers are approximate because at the time of publication the fourth program had not been conducted.

- **Florida Stormwater Erosion, Sedimentation Inspector Control Training**

This two-day DEP certification program for builders, developers and stormwater managers was provided to approximately 50 people in October. In discussions with the Collier County Stormwater Division, they indicated an interest in requiring this training for all County building, if CTP will offer it twice per year.

- **Go With the Flow: Watershed Science and Policy Program**

Rookery Bay Coastal Training and Big Cypress Basin - South Florida Water Management District partnered to deliver Go With the Flow: Watershed Science and Policy Program for elected officials and key decision makers of Collier County. Programs were field-based and held once a month from 7:30am-noon in March, April and May 2006.

- **Green Industries Best Management Practices for Water Quality Protection**

In March 2006 CTP piloted two sessions of BMP training for City of Naples Parks and Parkways staff and private landscaping businesses. The program was successful with 100% reporting an increased understanding of the effects of landscaping practices on water quality and increased understanding of best practices to minimize these impacts. A majority reported they would adjust the way they applied fertilizers, pesticides and water as a result of their participation.

On June 7th the City of Naples passed a resolution requiring this training for all city contractors and landscaping businesses working within the City. Rookery Bay CTP now provides this training

indefinitely with financial support from the City and the DEP Non-point Source Pollution Program. Funding and support includes a full-time staff person. Currently the City of Marco Island and Collier County are interested in the program and Collier Stormwater Dept pledges future funding.

- **Gulf Alliance Community Workshop Series**

Funding from the Florida Coastal Management Program was received for a one-year program to continue building community action plans related to the Gulf of Mexico Alliance strategy and the results of early Gulf-wide Community Workshops.

- **Hurricane SMART: Specialized Marine Assessment and Response Training**

Rookery Bay Coastal Training hosted Florida Sea Grant SMART training, a hurricane response and assessment program for coastal environments and marine industries on May 25th, 2006 from 8:00 AM to 5:00 PM. The training was conducted by Florida Sea Grant project coordinator Don Jackson. Jim von Rinteln of the Collier County Emergency Management department also presented a lecture on the role of local emergency operations center. The focus of the training was to provide participants with information and tools needed to coordinate with local, state and regional agencies to make initial assessments of local marine industries/ natural resources following a hurricane or other natural disaster. Attendees included land managers, Sea Grant agents, and marina managers who work directly and indirectly with the marine resources that would need to be assessed.

- **Leave No Trace**

One-day, National Outdoor Ethics Training for guides, interpreters and those with public access responsibilities was held in March for 29 people. The program was well-received, although much of the program focused on other parts of the country and was not applicable to coastal barrier islands and mangrove shorelines like that found at Rookery Bay.

- **Managing Small Docks and Piers**

Provided by NOAA National Centers for Coastal Ocean Science, Rookery Bay hosted this workshop and it was also offered at Apalachicola and GTM Reserves in Florida. More than 50 people from diverse professions such as code enforcement, permittees, marina operators, dock builders and environmental managers attended the full day session. Seven guest speakers covered the environmental, aesthetic/visual, navigational, public access, regulatory and best practices of small dock and pier siting and management. Rookery Bay will partner with Sea Grant to offer the workshop again in the Tampa Bay area.

- **Marine Mammal Stranding Network**

Rookery Bay Coastal Training hosted a Marine Mammal Stranding Verification Legalities, Responsibilities and Proper Procedures Workshop on April 27, 2006. The training was conducted by Florida Fish and Wildlife Conservation Commission (FWC) Manatee Biologists and was designed for county and state government employees who participate in or are interested in becoming involved in the FWC Manatee Rescue, Rehabilitation and Release Program. The goal of the program was to provide those who work in coastal areas with the knowledge and skills to recognize manatee injury or death and to properly report and respond.

- **Needs Assessment of Elected Officials in Florida**

Lead by Rookery Bay, in partnership with the Apalachicola and GTM Florida Reserves, the team is conducting a needs assessment of elected officials. The project bid for \$50,000 provided by the Florida Coastal Management Program was won by Florida State University. The assessment is underway and scheduled for completion December 31, 2006.

Program Highlights

- **Coastal Oceanography Day, March, 2006**

One-day teacher workshop during which scientists from our lead state agency, San Francisco State University, shared results from recent research with middle and high school science teachers and the NERR Education Coordinator introduced the teachers to standards-based activities that complemented the research that was presented.

- **Rush Ranch Open House, April, 2006**

Reserve staff participated in the annual open house at one of the components of the Reserve, Rush Ranch, which is also a working ranch with rich human history. This year's events included horse-drawn wagon rides, sheep dog demonstrations, and an art exhibit featuring paintings, photography, and poetry written about the reserve's wetlands.

- **Wetland Discovery nature walk, May, 2006**

This walk was the first of what we hope will be many guided nature walks at Rush Ranch by reserve educators and scientists. Many local people participated in the event, most of whom had never visited the reserve before.

- **Interpretive Signs at Rush Ranch**

With a grant from Friends of the San Francisco Bay, reserve staff and our partners at the Solano Land Trust are creating the first phase of interpretive exhibits to educate visitors at Rush Ranch. The four trail signs highlight the connections between the scenic marshes and the visitors' own choices, including supporting sustainable seafood and reducing use of lawn chemicals. Next year these signs will be joined by more ecologically-focused exhibits around the new classroom and lab facility.

- **Public Relations**

To complement our efforts at increasing public awareness of the reserve by tabling at environmental fairs and writing articles for local newsletters, we published our first reserve brochure and created a new website.

Outcome Summary

This year's education activities were focused on increasing public awareness of our young Reserve through participating in environmental fairs, publishing informational materials about the Reserve, and creation of interpretive signs and programs at the Reserve sites.

Program Highlights

- **Adaptive Management of West Coast's Tidal Wetlands, January 2006**

San Francisco Bay NERR hosted and coordinated, in partnership with Elkhorn Slough, Tijuana River, and South Slough NERR's Coastal Training Programs, a successful workshop that highlighted the lessons learned from older restoration projects along the Pacific Coast.

- **Establishment of Coastal Training Program**

July 2006 marked the official establishment of our Coastal Training Program. We hope to hire a CTP coordinator in November 2006.

Outcome Summary

With guidance from Elkhorn Slough NERR's Coastal Training Program we successfully demonstrated to NOAA, and our many partner organizations, that there is a need for trainings for coastal decision makers in our area and that we are uniquely capable of meeting their needs.

Sapelo Island National Estuarine Research Reserve

2006 Education Program Report

Brooke Vallaster, Education Coordinator – Brooke@darientel.net

• 30th Anniversary

To celebrate its 30th anniversary, SINERR hosted a variety of special events along the Georgia coast in 2006. 30th anniversary events kicked off in May with a look back at the history of Sapelo Island and its reserve. *Georgia's Coast: Life, Labor, and Landscapes*, featuring SINERR director and noted historian Buddy Sullivan, highlighted Sapelo Island in the larger context of coastal Georgia history. The program was offered in Brunswick, Darien, and Savannah through the summer months (the Savannah program also featured Gray's Reef NMS). Exhibits showcasing the research, education and stewardship programs of the SINERR as well as Sapelo's cultural heritage were displayed at Brunswick-Glynn County Library through August. Hands-on ecology education programs were offered on Sapelo for the public throughout the summer. Artwork by McIntosh Art Association members featuring scenes of the Reserve were displayed in August. Our biggest events, the *Scenes of Sapelo Island* concert and photo presentation (featuring photography by SINERR, Georgia DNR, and UGA personnel) and the NOAA Ocean Film Festivals in Savannah and Brunswick (co-sponsored by GRNMS) wrapped up a successful anniversary year.

Teacher Workshops

- Fall '05-Fall '06 programs included: *Georgia Shorebird Conservation* in December, *Coastal Ecology* for gifted program teachers from Camden County in January, *Green Eggs and Sand-Horseshoe Crab/Shorebird Education Program* in partnership with UGA MECA in April. *Coastal Ecology*, *Coastal Botany*, and *Georgia Sea Turtle Conservation* workshops in June.
- SINERR curriculum materials distributed to all SECOSEE summer workshop participants.
- Worked with *Rivers to Reefs* workshops, sponsored by GRNMS and Georgia Aquarium, during their Sapelo visits.

Communications & Resources

- The SINERR website has been updated to include semi-annual newsletters and an event calendar.
Education and Stewardship program staff developed a series of temporary exhibits to display at the library in Brunswick.
- A portable banner, for use at special events on the mainland, was designed and built in March.
- New SINERR one-pagers developed.
- SINERR Communications Specialist and EC work routinely with area newspapers, radio, website, and t.v. outlets to promote Reserve anniversary events.
- SINERR is partnering with Georgia Sea Grant to design several new exhibits for the Visitor Center.

Volunteers

- Friends of Sapelo Advisory Board completed tax exempt/corporate status for the organization.
- FOS Volunteer Coordinators participated in a regional volunteer workshop at ACE Basin NERR in March.

- In April, a one-day coastal ecology workshop was held on Sapelo Island for FOS members and a two-day workshop was held in August. The summer program featured native plants of the Georgia coast, sea turtle conservation, and on-going SINERR research.
- After an 18 month hiatus, FOS members resumed shorebird monitoring efforts on Nannygoat Beach.
- Hosted the Southeast Phytoplankton Monitoring Network volunteer training in August.
- FOS members have helped with a wide variety of projects this year including leading history tours of the Reynolds Mansion in December, planting live oak and pecan saplings on Sapelo, constructing new picnic tables for visiting school groups, and repairing the plumbing and roofing at the Nannygoat Beach bath house.

Partnership with Gray's Reef NMS

- The education programs of Georgia's sanctuary and reserve were featured at a joint GRNMS and SINERR advisory committee meeting held on Sapelo Island in April.
- SINERR and GRNMS are both celebrating anniversaries this year. Collaborative programs include the *Georgia's Coast: Life Labor, and Landscapes* program in Savannah and film festivals in Savannah and Brunswick.

Sapelo Island National Estuarine Research Reserve

2006 Coastal Training Program Report

Suzanne Vanparreren, Coastal Training Program – Suzannevanparreren@dnr.state.ga.us

In 2006, a total of 10 CTP workshops and trainings were offered where participants were involved. Participants include local and regional elected officials as well as natural resource managers, planners, developers, educators, businesses and individuals.

- **January**

Planning For Quality Growth

NPDES Stormwater Permit Workshop

- **February**

Citizen Planners: Making Local Land Use Decisions

Oyster Roast for A Reason

- **March**

Diamondback Terrapin Workshop

Green Building Seminar

- **July**

\$aving Money Through \$mart Development: Low Impact Development for Elected Officials

\$aving Money Through \$mart Development: Low Impact Development for Engineers, Architects and Developers

- **September**

Green Infrastructure in Georgia, Savannah

Green Infrastructure in Georgia, Brunswick

- **Highlight**

A Planning For Quality Growth Workshop was held in January with the City Council, County Council, Darien Downtown Development Authority, City and County Zoning & Planning Boards and Historic Preservation Board attending.

- **CTP Details**

The workshop was sponsored by the SINERR CTP and GA Coastal Management Program (CMP) and presented by the Southeast Watershed Forum.

Outcome Summary

1. Upon the reiteration of the importance of a comprehensive plan, the Regional Development Center was able to provide important information regarding the Comprehensive Plan they are working on for the town and county.
2. A 90-day moratorium on any zoning variances ensued to strengthen the local ordinances and to provide training to the Zoning and Planning Boards.
3. The attendees requested a workshop on erosion and sedimentation control and how to become a local issuing authority. This workshop was provided by the SINERR CTP and

GA CMP that following month and presented by the DNR Environmental Protection Division.

4. The RDC requested assistance from the SINERR CTP to help provide information and recommendations on the Natural Resources section for the comprehensive plan. Together with the GA CMP and the local NEMO program the SINERR CTP wrote the Natural Resources section for the plan.
5. The SINERR CTP has assisted several trainings for the Zoning and Planning Boards which were presented by the UGA Carl Vinson Institute of Government and a private planning firm from SC.

The SINERR CTP, GA CMP and NEMO continue to meet with select members of City Council on a regular basis to provide assistance with many issues regarding rapid growth in a coastal community.

As of recently (August), the Southeast Watershed Forum was awarded a grant to assist small communities with integrating wetlands protection into their land use practices. Due to our workshop in January they had selected for Darien to be one of the communities they would like to work with.

South Slough National Estuarine Research Reserve

2006 Education Program Report

Tom Gaskill, Education Program Coordinator – Tom.Gaskill@state.or.us

The educational programs of the Reserve continue to attract attention within the local community and throughout the state. Newspaper and media coverage have highlighted a variety of educational program offerings including the International Brant Monitoring Project, the Estuary Study Program, and weekend interpretive paddling trips.

- **TIDES Curriculum Completion Report**

The development of the TIDES (Teaching Investigation and Discovery through Estuary Study) curriculum has occurred over an extended period of time and a final 1st draft has now been completed. Elements of this product have been field tested with schools over the past several years and will have significant consequences for the way that South Slough NERR's education program works with classes and teachers. The implementation of the TIDES curriculum will enable the Reserve to offer activities that can be easily used at other estuaries located within the bio-region, while still referencing the rich and diverse informational and research-based resources offered by South Slough NERR. TIDES Explorer student kits and Estuary Study backpacks can be easily refined and reproduced for loan, while Power point presentations and publications can be accessed via the Internet.

- **New Interpretive Exhibits**

The Reserve is in the process of developing exciting new exhibits for the South Slough Interpretive Center. These exhibits will include orientation to the watershed including the extensive trail network and waterways and views to the influence of the ocean on the coastal landscape, the key habitats of the estuary, and how science is furthering our understanding of South Slough. Fabrication and installation will be completed in December, 2006.

- **Estuary Live 2006**

South Slough NERR will participate in the 2006 Estuary Live program in partnership with the Tillamook Bay NEP in the development and delivery of a one hour live broadcast via the internet on Friday, September 29th.

We will be focusing on two of the most charismatic emblems of Pacific Northwest coastal culture, crabs and salmon. ***"A Tale of Two Species – A Tale of Two Estuaries"*** will highlight the fantastic journeys and deeply rooted relationships that bring Coho salmon and Dungeness crab to Oregon's estuaries. As we explore the richness of eelgrass beds, we will draw together these two stories by exploring research taking place at South Slough NERR and within Tillamook Bay.

- **Apprenticeships in Science and Engineering (ASE) 2006**

The ASE students worked on an 8 week invasive species research project combining fieldwork with lab study and data compilation to develop an informational repository. This data collection includes images, distribution maps, status reports, location data and a communication tool for general audiences.

The ASE students chose to focus aquatic invasive efforts on mapping the distribution and abundance and conducting an eradication experiment on the non-native eelgrass *Zostera japonica* in the Sloughside Pilings/Rhodes Dike area. This is a restricted circulation tidal wetland where only

passive restoration has occurred to date. Results of their work were presented at a student research symposium at Portland State University. South Slough will be facilitating a meeting to expand this program through collaboration with community partners.

Summary

Priority projects in the coming months will include work on the previously mentioned activities and refinement of program offerings including needs assessment, continued development of evaluation systems, and programmatic fundraising initiatives with community partners.

South Slough National Estuarine Research Reserve

2006 Coastal Training Program Report

John Bragg, Coastal Training Coordinator – John.Bragg@state.or.us

- **Tide Gates Symposium – Oct. 31-Nov. 2**

From Oct. 31-Nov. 2 South Slough will present the West Coast Symposium on the Effects of Tide Gates and Dikes on Estuarine Habitats and Fishes at the Interpretive Center. This region-wide conference will bring experts from across the country to discuss the design, evaluation and use of tide gates, and their environmental effects on fish passage and wildlife habitat. Tide gates are used to moderate stream flows in tidally influenced areas such as estuaries. Traditionally tide gates were used to exclude salty water from areas that were being converted to pasture or croplands or to drain coastal wetlands for development. Contemporary tide gates are used for a variety of purposes, including habitat restoration, for example, controlling the amount and timing of flows to enable salt marsh restoration while protecting nearby property from erosion; or re-establishing habitat for migratory birds or anadromous fish.

- **Ship Recycling Seminars – Update**

Earlier this year South Slough Reserve, in cooperation with Oregon Institute of Marine Biology and the Oregon International Port of Coos Bay, offered two seminars on ship recycling, also known as shipbreaking, following the announcement that a firm was looking for opportunities to recycle Naval vessels in an Oregon port. The first seminar addressed the problem of invasive aquatic species that infest the hulls of these vessels, many of which have been anchored in reserve fleets, such as the ghost fleet in Suisun Bay (part of San Francisco Bay) for, in some cases, decades. A subsequent seminar addressed a wide range of questions about the environmental costs and benefits that would entail should a ship recycling facility be established in Coos Bay. The Port commission has regulatory authority to draft regulations to protect the port district from harm that might not be covered by existing state rules.

- **Earthquake-Tsunami Connection – Oct. 21, 2006**

Planning is well-advanced for the Earthquake-Tsunami Connection workshop, set for Oct. 21 at the Hales Performing Arts Center at Southwestern Oregon Community College (9 a.m. to 1 p.m.) This workshop is a sequel to a workshop held in 2005 to increase public awareness of the potential damage that might be posed by a tsunami originating from an earthquake in the Cascadia subduction zone, located several hundred miles off the Oregon coast. A subduction zone earthquake, if sufficiently strong, can trigger a tsunami that could devastate coastal communities and infrastructure. Emergency assistance from outside the area might not be available for up to several weeks, as was demonstrated during the hurricanes in Florida and Louisiana last year. At the October seminar, participants will learn specific steps they can take to prepare their families, neighborhoods, businesses and schools in the critical two-week period following a disaster.

Tijuana River National Estuarine Research Reserve

2006 Education Program Report

Anne Marie Tipton, Education Coordinator – AmTipton@parks.ca.gov

Program Highlights

- **K-12 Programs**

There have been several elementary and middle school programs this winter due to our new partnerships with KPBS for EEKO World and Trimble with Ocean Explorers as well as Habitat Heroes classes. EEKO World classes get free scholastic books, transportation fees, and participate in MARSH or Explorers. This was a great way to get new inner city and South Bay classes here that wouldn't have been here otherwise without the transportation funds. Ocean Explorers is for 6th grade middle school students. We developed new field trip activities for them including water quality testing (chemical) and plant sampling.

We lead the first high school teacher training the first weekend in March for our new Teachers' Guide. We had 11 teachers are enrolled. The training was taught by the Education Coordinator(EC), Dr. Jeff Crooks, and Research Associate Michelle Cordrey. The teachers are spending a lot of time in the field. Optional SDSU graduate credit will be available.

Education Coordinator Tipton gave a talk on *Using the System-wide Monitoring Program (SMWP) data in K-12 Education* at the annual National Science Teachers Association (NSTA) conference in Anaheim on April 7th. She was substituting for NERRS Education Coordinator Atziri Ibañez who was not allowed to attend due to lack of travel funds. Tipton got good evaluations from the teachers and names four people interested in serving on the K-12 Estuary Education Program (KEEP) Advisory Board.

The education staff developed a new outreach program at the request of Central School in the National City School District. We will be presenting to six third grade classes at that school. The first program was May 31st. The program includes a power point on *What is an Estuary* and making the *Marsh Mud Pie* from pudding and gummy worms, etc. The Marsh Mud Pie Activity is from our M.A.R.S.H curriculum.

In July we hosted children from the San Pasqual Band of Mission Indians. They chose this site because they wanted to teach their children about Kumeyaay uses of the coast including the estuary.

- **English Language Learner (ELL) Training**

Tipton provided a four-hour English Language Learner (ELL) Training locally for District staff and partners and at the California State Park Ranger (CSPRA) conference in Laughlin, Nevada as well. The training is from the Headlands Institute in Northern California. The class includes viewing a video that shows examples of good techniques and practicing those techniques with the other participants. This training received excellent evaluations as well.

On May 17,th Education Specialists Ahmad and Warner-Lara used some of the techniques they learned at the ELL training with the first high school field trip since the Teacher Training. The class was a group of girls from the Westwood Charter School, a Muslim institution. Many of the girls had

good English proficiency. Ahmad and Warner-Lara used several of the ELL techniques including writing down difficult terms on portable dry erase boards (Visual and Define the Vocabulary), leaving a Wait Time after questions, Checking for Understanding with retention questions, and they tried to Speak Slowly and Clearly. The girls related well to Marya's last name (Ahmad) and she served as a great role model.

- **Junior Rangers**

Junior Rangers has been getting good attendance. The programs are all revised this year to have varied activities and sound environmental education principles. We have a former science high school teacher, Diana Hussey, as a volunteer to write several of the new lesson plans.

- **Earth Day**

Debby Good and Estuary Education staff led another successful Earth Day planting on April 22nd. There was a record 125 people, including a USCD group brought by the CTP program.

- **Fiesta del Río**

On Sunday, October 8, 2006 we are hosting the 3rd annual Fiesta del Río with activities ranging from children's games, dancing, and entertainment like Dr. Zoolittle and his wonderful show about the natural world and its creatures. Booths will feature San Diego's leading environmental organizations, or visit Native handicraft booths featuring the art and pottery of contemporary Kumeyaay artisans. The premiere of the *Sloughs* musical, performed by Mendoza elementary students, based on Dempsey Holder and the brave early surfers of the huge waves off the Tijuana River mouth will take place this year. There will be an Urban Environmental Art mural by students of renowned muralist Victor Ochoa, a mariachi band from the Sweetwater Union High School District, and the environmentally-conscious reggae band *Burnt*.

Waquoit Bay National Estuarine Research Reserve

2006 Education Program Report

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Nancy Church: Interpretive/Volunteer Coordinator – Nancy.Church@state.ma.us

Laurie Tompkins: Events Coordinator – Laurie.Tompkins@state.ma.us

Community Education

The Reserve continued to offer the practical hands-on courses, Cape-Friendly Landscaping and The Green Home: Focus on Renewable Energy and Energy Efficiency workshops in different locations around the Cape.

A strategic program planning process was launched internally to refocus efforts on wastewater treatment education. The Reserve is partnering with several Cape organizations to offer its Water From the Ground Up class at three locations to interested citizens as well as support training of presenters for the CapeKeepers Program (see CTP for further explanation).

The Reserve's EC coordinates monthly public programs/networking meetings as part of the Cape and Islands Renewable Energy Collaborative (CIREC) www.cirenew.org, which seek to connect citizens with information and resources to reduce their contribution to green house gases and nitrogen compounds from the burning of fossil fuels. The Reserve was one of three partnering organizations on a \$50,000.00 grant that CIREC was recently awarded from an electric ratepayer's fund to promote renewable energy in Massachusetts that will include publication of a local "sustainable yellow pages" as well as targeted workshops for citizens and coastal decision makers.

* The Reserve receives many calls from homeowners wanting information on how to do their building project more sustainably as well as groups wishing to organize and host workshops at their businesses (architects) and in their areas.

• Interpretive Program

The Reserve provided coastal interpretive training for interpreters from the coastal sites of the State Park system and plans are underway for the Reserve to further support increasing the capacity for coastal interpretation state-wide. In addition to the full summer schedule of interpretive field walks, Summer Science School, Junior Ranger programs, Creature Features and Evening on the Bluff events, the Reserve instituted a new schedule of Meet the Researcher Boat trips and partnered with the local library and children's museum to expand programming offered off-site. We hired Nancy Church to be our Interpretive/Volunteer Coordinator and she'll be working on setting up a monthly series of interpretive programs during the fall/winter/spring to foster a sense of place and show human connections to the estuary by inviting guest presenters such as the local shellfish warden. In addition, the Reserve came out with a new publication written by a volunteer, "The History of Washburn Island."

• Teacher Training

Besides topics in estuarine science, graduate credit courses and workshops for teachers in 2005-2006 focused on climate change, renewable energy, math applications of science topics, and using data with students. During this year we worked closely with scientists and other experts to plan and present teacher training programs on fish, climate, oceans and coasts, and renewable energy. We

have introduced lessons using SWMP data and other coastal data sets into classes for teachers on weather and climate. We have convened a group of teachers who are interested in piloting SWMP-based lessons.

*This year we heard from many teachers who have taken our courses in the past that they are teaching about estuaries, climate change, and/or renewable energy in their classrooms.

*Teachers confirm that the opportunity to earn graduate credit for courses taken through Waquoit Bay Reserve is very valuable for them.

- **Programs for Students**

Classes for students now include measurements and marking of predicted sea level and storm surge for 2100, as well as transect and quadrat studies of plant communities at sea level and bordering salt marshes. We have instituted pre and post testing to evaluate learning in a representative sample classes of students. Starting in 2005, we ask every student and teacher who participates in a program at Waquoit Bay Reserve to make a pledge describing one action he or she will take to reduce greenhouse gas emissions or protect or improve the health of the estuary system.

* Most of the students in grade 8 who participated in estuary programs in grade 6 are able to define an estuary and give an example of an ecological role of an estuary.

Waquoit Bay National Estuarine Research Reserve

2006 Coastal Training Program Report

Tonna-Marie Rogers, Coastal Training Coordinator – Tonna-marie.surgeon-rogers@state.ma.us

- **Massachusetts Dept of Conservation & Recreation (DCR) Training Workshop Series**

The CTP platform was used for the first time to provide training for staff of DCR – the Reserve's State agency partner. The DCR is one of the State's largest coastal land owners and staff members are important coastal decision-makers. A series of workshops was used to strengthen ecological knowledge of forest and parks supervisors in order to enhance management and protection of DCR coastal resources. Topics covered included groundwater protection, coastal water quality, coastal geology, shoreline erosion, invasive species, wildlife habitat and energy conservation and efficiency.

- **High Performance Building on Cape Cod**

A major workshop attracting over seventy five (75) architects, builders and engineers was convened to focus on moving towards zero net energy homes. The event was a culmination of a series of mini-workshops held in several architectural firms to promote green building approaches. Continuing education credits were offered for architects as one means of reaching this audience. The workshop was jointly sponsored by a planning group of partners drawn from several organizations and businesses on Cape Cod and includes the Reserve. The group continues to meet and plan follow-up training and other activities for this target audience such as networking sessions that facilitate discussion on different aspects of green building. The Reserve's Education and CTP Coordinators participate in the planning group and led the workshop planning, again demonstrating integration among sectors on cross-cutting issues at the Reserve.

- **Solar Hot Water Heating Workshop**

In partnership with several regional organizations the CTP offered this skills-based training promoting use of a renewable energy source to plumbers, heating contractors and architects. Major funding was secured from Key Span (the regional utility provider) and the opportunity was used to advertise their new rebate program for solar energy. Continuing Education credits for architects were offered through the Boston Society of Architects. This workshop grew out of efforts made by Reserve's Education Coordinator to establish partnerships with groups in the region focusing on renewable issues. This is another example of integration among sectors at the Reserve level. A follow-up installation workshop is being planned where solar panels will be installed on the Gatehouse Building of the Reserve in hopes that the building will be used as a demonstration site for future efforts to promote solar energy use.

- **Atmospheric Deposition of Nitrogen Workshop**

This event focused on an important nitrogen source often under-emphasized in discussion of the pressing eutrophication problem on Cape Cod. Three experts presented on different aspects of the issue using latest research findings and case studies. The day concluded with a lively panel discussion on the management and policy implications of the scientific information presented for the region. The workshop, which targeted municipal officials, land use planners, watershed protection groups, researchers, and consultants motivated media coverage on this topic and helped raise awareness and bring clarity to a complex issue.

- **Mashpee National Wildlife Refuge Seminar Training Series**

Following on efforts initiated by the Reserve's Stewardship Coordinator, the CTP organized several training seminars for organizations within the Mashpee National Wildlife Refuge Conservation Partnership – a group of land owners which seeks to work cooperatively to manage protected lands

on Cape Cod. The overall thrust of the training was improving habitat management, conservation and restoration. Each seminar focused on a different habitat type occurring within the Refuge such as vernal pools, cedar swamps and salt marshes and guest speakers addressed the ecological value, threats and conservation strategies for these areas. The seminars concluded with field trips to respective habitat types. Some of these sessions were also opened to local Conservation Commissions.

- **Cape Keepers Speakers Bureau Pilot Training Workshop**

The CTP partnered with the Barnstable County Wastewater Implementation Committee (WIC) to train a group of motivated coastal decision-makers to form a Speakers Bureau for an education campaign focused on addressing the impacts of septic system use on coastal water quality on Cape Cod. A train-the-trainers approach was employed and these speakers are expected to train others about the region's wastewater problem and how towns are arriving at solutions. Both the Reserve's Education and CTP programs will share aspects of continuing the partnership with the WIC by offering more in-depth training for speakers and others on the issue.

Outcome Summary

Over the last year our training efforts have largely focused on water quality, eutrophication, climate change/energy and habitat and wildlife management issues. Through the training workshops addressing eutrophication, municipal officials, conservation groups, watershed protection groups, researchers and consultants have been spurred to seriously consider the atmospheric contributions to nitrogen loading. Some participants who attended the workshop on atmospheric deposition of nitrogen were being exposed to information presented for the first time. Comments on the workshop evaluations demonstrated that scientific understanding of the issue had improved but more importantly that persons were convinced that this component of nitrogen loading must be addressed as communities consider comprehensive approaches to solving this coastal problem.

The seminar series for the Mashpee National Wildlife Refuge Conservation partnership is helping to prepare a select group of land owners and land use planners to embark on joint development of a broad habitat management plan. The plan will be used to enhance preservation, protection and restoration of key coastal habitats occurring in the Refuge.

The training seminar series initiated for DCR staff has helped to raise visibility of the Reserve's programs within the agency. Beyond this, forest and parks supervisors targeted throughout the series are beginning to apply information presented towards management of invasive species and wildlife habitat (anecdotal accounts). They have also been further sensitized and challenged to the importance of practicing energy conservation and efficiency on DCR properties.

Lastly, the emphasis on zero net energy homes and solar hot water heating has helped building professionals to identify how and why they should apply green building techniques in order to maximize building performance, savings, health and environmental benefits etc. We are reaching business persons who are also key coastal decision-makers and are offering practical training that they can readily apply. Interest in training and networking sessions offered by the Planning Group is growing which demonstrates that these activities are having the desired impact at the local level.

Wells National Estuarine Research Reserve

2006 Coastal Training Program Report

Chris Feurt, Coastal Training Program Coordinator – Cfeurt@wellsnerr.org

Reporting period: November 2005 – October 2006

Protecting Our Children's Water, 2005 - 2025:

Implementing a Watershed Approach in Two Southern Maine Watersheds

- Watershed Presentations to Town Managers, Select Boards and Town Councils in watershed towns, 8 presentations March – June, 2006
- Strategic Planning sessions for Little River and York Watersheds Feb and June, & October, 2006
- Source Water Protection Workshop York Water District August, 2006
- Protecting the Headwaters Tour Branch Brook Watershed May, 2006
- Stormwater Management Tour of UNH Stormwater Research Facility November & December 2005, June & September, 2006
- Kittery Stormwater Road Trip September, 2006

Regional and State Level Training

- Reading Site Plans for Water Quality Protection November, 2005 8 hours
- Public Issues and Conflict Management, presented by CSC January 2006
- Contractor/Erosion Control Workshop, presented by Maine DEP, March 2006
- Maine Healthy Beaches Forum April 2006
- Maine Coastal Waters Conference, May 2006
- Regional ASSETS/SWMP Workshop June 2006

National Training

- Collaborative Learning Workshop presented with The Coastal Society's Biennial Meeting. Tampa Florida, June, 2006

Presentations at Professional Meetings

"Protecting Our Children's Water," Bridging Disciplinary, Institutional and Perceptual Barriers to Improve Coastal Watershed Management Using a Collaborative Learning Approach

- Maine Coastal Waters Conference, April 2006
- The Coastal Society, May 2006
- International Symposium on Society and Natural Resources, June 2006

Outcome Summary

CTP programs reached over 500 people who participated in over 3,700 hours of training during the period from January – June 2006. CTP trainings work at the watershed scale to engage a community of stakeholders in ongoing collaborative efforts to protect and manage water resources. Regionally and nationally the Wells NERR CTP integrates with research and stewardship programs at the reserve. A regional ASSETS/SWMP workshop examined the application of SWMP data to the ASSETS eutrophication model for estuaries. Participants from all New England NERRS evaluated the model as a tool for predicting eutrophication status and trends using SWMP data. A national Collaborative Learning training workshop designed for coastal outreach professionals included 14 participants from across the country and one from Australia. This workshop was sponsored by CICEET and presented by Drs. Steven Daniels and Gregg Walker who developed the Collaborative Learning approach and adapted their method for coastal audiences in this workshop.

Estuarine Reserves Division

2006 National Education Report

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The 2006 federal fiscal year was dedicated to preparation for the development of the Estuaries 101 curriculum, one of the first steps toward launching the K-12 Estuarine Education Program (KEEP); raising the visibility for the NERRS education programs; and to forming partnerships with other NOAA programs. This preparation included leveraging funds, pursuing partnerships for collaboration on future education products, and conducting needs assessments to determine how to best serve teachers and students. The following highlights illustrate specific major accomplishments of the Estuarine Reserves Division during the 2006 fiscal year.

ERD Leverages Partnerships and Funds for the Implementation of KEEP

- On behalf of the NERRS Education Coordinators, ERD wrote and submitted a mini-grant proposal to NOAA's Office of Education requesting \$100,000 for the development and implementation of a K-12 National Teacher Needs Assessment. The proposal, titled "Bridging the Gap: Assessing the Needs of Teachers to Enhance NOAA's Earth Systems Science Education", was funded. The project (often referred to as the "mini-grant") will help the NERRS education sector clearly define K-12 teacher needs and preferences in accessing and infusing NOAA and NERRS content in their classrooms, as well as define the obstacles and opportunities in teaching about estuaries. The assessment will help NERRS Education Coordinators to design, develop and implement the system-wide KEEP, which will offer teacher training and web-based programs about estuaries. In addition, this grant has served to formalize partnerships with various NOAA offices, including the National Weather Service; Climate Program Office; Coastal Services Center; Fisheries, Habitat Protection Division; the Center for Operational Oceanographic Products and Services; and the Chesapeake Bay Office. The Chesapeake Bay Office decided to contribute \$50,000 for the development of the Estuaries 101 Curriculum.
- ERD wrote and submitted a proposal to NOAA's Office of Education requesting \$60,000 to develop a web-interface for education using SWMP data. This action resulted in \$40,000 of funding which will be dedicated to help develop an on-line education application to support the Estuaries 101 Curriculum.
- ERD wrote and submitted a proposal to NOAA's Office of Education requesting \$200,000 to develop the NOAA Data Education Portal (NODE). This action resulted \$130,000 of funding and an increased level of collaboration with National Oceanographic Data Center (NODC) and National Marine Sanctuary Program (NMSP). The will be a demonstration project which will aim to methods for integrating different data parameters to tell teach compelling lessons; provide a test-bed for development of educational applications of IOOS data; and will seek to analyze the usability of IOOS data by the non-scientific public. SWMP data will be used in the development of some of the educational activities.
- Early in 2006, ERD assisted the SWMP/IOOS Interpretation Workgroup and NERRA to conceptualize, draft and submit a literacy proposal to NOAA's Office of Education. The Environmental Literacy Grant Program was very competitive again this year, and although the proposal was excellent and received outstanding reviews from NOAA, it was not recommended for funding. NOAA received 130 applications and funded only 5 proposals.

Assessment of How Teachers and Students Use Real-time Data is Finalized

“SWMP/IOOS Real-Time Data in K-12 Classrooms: A Front-end Evaluation” is the title of a needs assessment began in 2005 and lead by Janice Mc Donnell from the Jacques Cousteau Reserve. This assessment focused on (1) identifying the gap between IOOS/SWMP data and the needs/capabilities of K-12 teachers and students to use those data; and (2) determining ways to bridge that gap via data visualization/ presentation and educational products/services. This assessment has been finalized and a report will be posted on the NERRS website in the fall of 2006.

“SWMP/IOOS Real-Time Data in K-12 Classrooms: A Front-end Evaluation” was the first of two needs assessments undertaken this year. The second assessment being “Bridging the Gap: Assessing the Needs of Teachers to Enhance NOAA's Earth Systems Science Education” is mentioned in the previous section.

Estuaries 101 Contractor Secured

In order to help advance the product development phase of KEEP, ERD in collaboration with the Estuaries 101 Workgroup drafted an RFQ to bring in a contractor to help implement the National K-12 Teacher Needs Assessment and develop the Estuaries 101 educational materials. As a result of this TERC is the organization that was selected to help these goals. The selection of this contractor marks another exciting step towards creating a quality estuarine education program. The contractor will begin by meeting with Reserve educators at the 2006 NERRS Annual Meeting to describe their expertise, ideas, and work plan for creating the Estuaries 101 materials.

ERD Involved in Several NOAA Office of Education Initiatives

Throughout the year, ERD has worked closely with the NOAA Office of Education on a variety of education initiatives. For example, ERD has provided feedback and suggestions, via various meetings and workshops, on the development of the new Office of Education website. In addition, ERD has been actively involved in the Office of Education's Planning, Programming, Budgeting, and Execution System (NOAA's budgeting system commonly known as PPBES) and other budget and planning discussions for the federal fiscal years 2009-2012.

NERRS Represented at NMEA Conference

Nearly a dozen NERRS Education Coordinators and ERD staff made presentations and led sessions at the 2006 conference of the National Marine Educators Association (NMEA) in Brooklyn, New York this year. Most of the NERRS-led sessions focused on integrating reserve research projects into educational programs. More than 300 teachers and other educators from throughout the country attended the NMEA meeting.

Presentations given by ERD staff members included a poster with discussion titled “Understanding Estuaries through the Use of Data” and a lecture titled “Discover Estuarine Educational Resources Offered by NOAA's National Estuarine Research Reserve System”. These presentations serve to publicize the NERRS, and education programs offered by the NERRS, to teachers from across the U.S interested in teaching marine science.

ERD assisted the NERRS educators who attended and presented in several ways. ERD provided encouragement and guidance, as needed, on draft presentations and posters. ERD created a one page flyer to advertise all NERRS related presentations taking place at the conference. Following

the conference, ERD posted NERRS presentations on the Intranet to show off the great presentations and to provide examples and inspiration for other NERRS educators who may consider presenting at future conferences.

NERRS Education Programs Enjoy Increased Visibility

In 2006, ERD took steps to further promote the NERRS and the education programs offered by the NERRS. Such steps included:

- ERD generated a more formalized format for the **NERRS Education Bulletin** and implemented its bi-monthly delivery through the national estuaries day listserve. The bulletin has grown from 700 to 1350 people, primarily including teachers interested in teaching about estuaries. The bulletin has become an increasingly effective vehicle to inform and engage teachers, and communicate information on the education programs offered by the NERRS. The bulletin provides information about upcoming NERRS events, EstuaryLive, National Estuaries Day, and professional development opportunities that focus on estuaries.
- ERD drafted an article, titled “Ocean Observatories and the Role of Federal Ocean Education Networks”, in collaboration with the National Science Foundation, Sea Grant and the National Marine Sanctuary Program. The writing of this article formed a partnership that has allowed for increased understanding of the programs and has sparked interest in collaborating more effectively at the national level.
- ERD staff helped NOAA to host teachers from around the country as part of the Maury Project, an annual two-week summer workshop for science teachers, sponsored by the American Meteorological Society. The 25 science teachers toured NOAA exhibits set up in the Science Center at NOAA headquarters in Silver Spring, MD, including a booth devoted to NERRS education programs and EstuaryLive. This annual event, followed by an open house for all NOAA employees, gives teachers the opportunity to learn about various NOAA-led education initiatives. They then take back and use the information and materials they receive for students and other teachers.

EstuaryLive a Success

The 2006 edition of EstuaryLive featured live virtual field trips from four sites. South Slough and Padilla Bay were the two reserves that participated during the one-day annual event. Becky Weidman, National Estuaries Day Coordinator did a wonderful job in coordinating the whole program and ensuring that there would be no technical glitches! ERD provided technical assistance in the overall implementation of the program and in particular with the evaluation strategy and tools used. ERD, as years past, has been responsible for maintaining and updating the website, the registration and ensuring access to the program.

ERD Develops Tools to Support NERRS Educators

The NERRS website (www.nerrs.noaa.gov) now includes a calendar of educational activities and events throughout the reserve system. Education coordinators can enter their activities through the NERRS Intranet site, and visitors can search the calendar by date, reserve and category of event. Past calendar entries are archived. The new calendar is designed to increase awareness of the breadth of educational activities offered at all of the reserves.